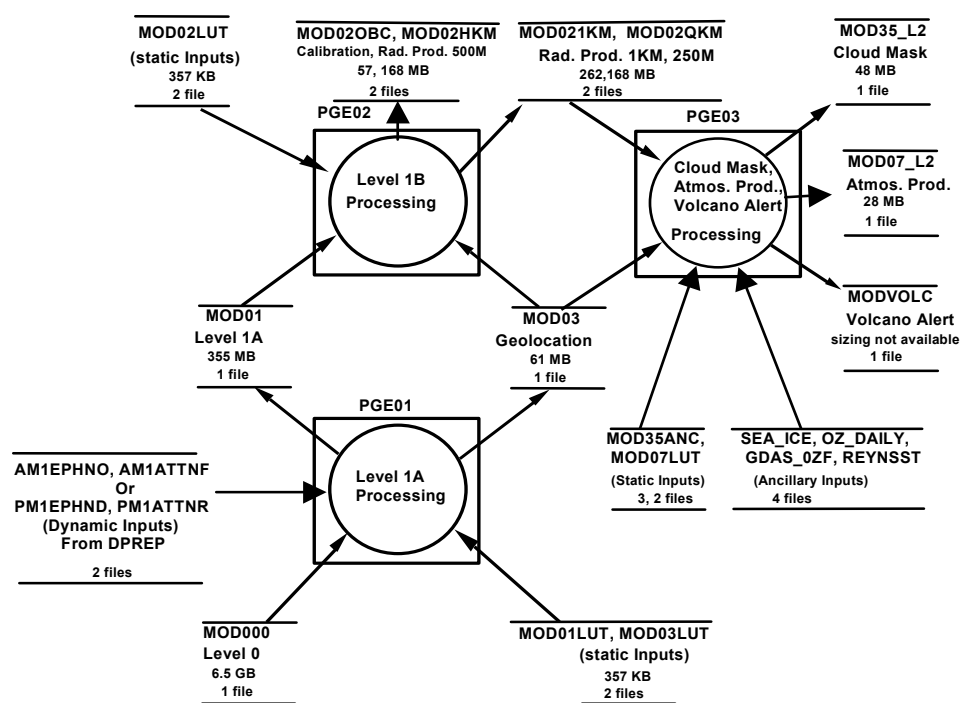## 3.5 MODIS Scenario

3.5.1 MODIS Scenario Description

This scenario shows how the ECS supports standard MODIS processing. Generally, MODIS Level 0 data is made available to ECS when MODIS files are placed into a predetermined directory on a predetermined host, which ECS polls periodically. ECS detects the availability of new Level 0 MODIS data via a PDR (Product Delivery Record) file. ECS then ingests and archives the new Level 0 granule, and a sequence of standard production algorithms is run based on that new data.

The PGE01 processes previously archived MOD000 data into MOD01 and MOD03 granules. These MOD01 and MOD03 granules, along with ancillary data, are automatically input to PGE02 to produce MOD02OBC, MOD021KM, MOD02HKM, and MOD02QKM data (all part of "MOD02" data). MOD03 data and selected MOD02 data are input to the PGE03, which produces MOD35_L2, MOD07_L2 and MODVOLC granules.

The threads in this scenario show Terra data utilization. These same threads also apply for the Aqua satellite utilizing similar ESDT data for that satellite.

Figure 3.5.1-1 illustrates the relationships between the data types and PGEs used in the MODIS Scenario.

Figure 3.5.1-1. MODIS Scenario PGE/Data Relationship Diagram

The following system functionality is exercised in this scenario:

- Automatic Scheduling of PGE execution (See Thread B)

- Archive Data as PGE Inputs (See Thread B)

- Chaining of PGEs (See Thread B)

- Concurrent PGE Execution (See Thread B)

- Access to ECS produced data (See Thread E)

- Standing Order Submittal and Support, including distributing data to users (Threads A, B & E)

- Support of failed PGEs (See Thread D).

3.5.2 MODIS Scenario Preconditions

The following ESDTs have been inserted into the ECS:

- MOD000 (MODIS Level 0 Raw Instrument Packets - used as input to PGE01)

- MOD01 (L1A Raw Radiances)

- MOD021KM (L1B Calibrated Radiances Product (1000m))

- MOD02HKM (L1B Calibrated Radiances Product (500m))

- MOD02QKM (L1B Calibrated Radiances Product (250m))

- MOD02OBC (MODIS Level 1B Onboard Calibrator/Engineering data)

- MOD01LUT (MODIS Engineering Telemetry Lookup Table)

- MOD02LUT (MODIS Instrument Calibration Parameters Lookup Table)

- MOD03LUT (MODIS Instrument and Satellite Parameters for MOD03)

- MOD07LUT (MODIS Temperature and Water Vapor Profile Inversion Coefficients)

- MOD03 (MODIS Geo-Location data)

- MOD35ANC (EDC Land/Sea Mask Olson World Ecosystem Mask)

- SEA_ICE (NCEP SSM/I Sea Ice Modelers Grid Data Level 3 Product)

- OZ_DAILY (NCEP TOVS Ozone Daily Product)

- GDAS_0ZF (NCEP 1-Degree Global Data Assimilation Model (GDAS) Product)

- REYNSST (NCEP Reynolds Blended SST Weekly Product)

- MOD35_L2 (MODIS Cloud Mask and Spectral Test Results)

- MOD07_L2 (MODIS Temperature and Water Vapor Profile Product)

- MODVOLC (MODIS Volcano Alert File)

- AM1EPHN0 (Preprocessed Terra Platform Ephemeris Data from L0 in Native format)

- AM1ATTNF (Preprocessed Terra Platform Attitude Data from L0 in Native format)

- PM1EPHND (Preprocessed Definitive Aqua Platform Ephemeris Data from FDD in Native format)

- PM1ATTNR (Aqua Platform Definitive Attitude Data in Native format) (NOTE: It is assumed this could be either PM1ATTNQ (Quick Attitude) or PM1ATTNR (Refined Attitude)).

- PGEEXE (PGE Execution Granule)

- FAILPGE (Failed PGE History)

- PH (Product History)

The following PGEs have successfully been through the SSI&T process:

- PGE01

- PGE02

- PGE03

Ancillary and static data granules have been inserted into Data Server.

MOD000 granules have been inserted into the Data Server (via Ingest Polling from EDOS).

Subscription for MODIS failed PGE has been entered on behalf of Instrument Team.

A Resource Plan has been created for resources needed for MODIS production.

A Production Plan has been created using the Production Planning Workbench. This Production Plan includes Production Requests for the PGE01, PGE02 and PGE03. Available inputs trigger the PGEs. The DPR for PGE01 job in the plan includes references to the appropriate MOD000 granules. The DPRs for PGE02 and PGE03 have submitted subscriptions for the Insert events for appropriate input data.

3.5.3 MODIS Scenario Partitions

The MODIS scenario has been partitioned into the following threads:

- MODIS **Standing Order Submittal** (Thread A) - This thread simply shows how the DAAC User Services submits a standing order for MOD35_L2 granules to be distributed via ftp Push to a science user (see Section 3.5.4).

- MODIS **Standing Order Support** (Thread B) - This thread shows how the system supports standing orders for data granules (see section 3.5.5).

- MODIS **Standard Production** (Thread C) - This thread shows how the sequence of PGEs (PGE01, PGE02, PGE03) execute in a chained fashion, with the output of one PGE being used as the input of the next (see Section 3.5.6).

- MODIS **Failed PGE Handling** (Thread D) - This thread shows how the artifacts from a failed PGE are collected and sent to the Instrument Team (see Section 3.5.7).

- MODIS **Data Access** (Thread E) - This thread shows how the generated data products are available for user access. Also in this thread, the MODIS Standing Order, submitted in Thread A, is fulfilled (see Section 3.5.8).

- **Reactivation/Replan** (Threads A, B, C) – This series of threads shows the three different types of reactivation/replanning and applies to MODIS or ASTER (see section 3.5.10).

3.5.4 MODIS Standing Order Submittal Thread

This thread simply shows how the DAAC User Services submits a standing order for MOD35_L2, MOD07_L2 and MODVOLC granules to be distributed via ftp Push to a science user.

3.5.4.1 MODIS Standing Order Submittal Thread Interaction Diagram - Domain View

Figure 3.5.4.1-1 depicts the MODIS Standing Order Submittal Interaction.
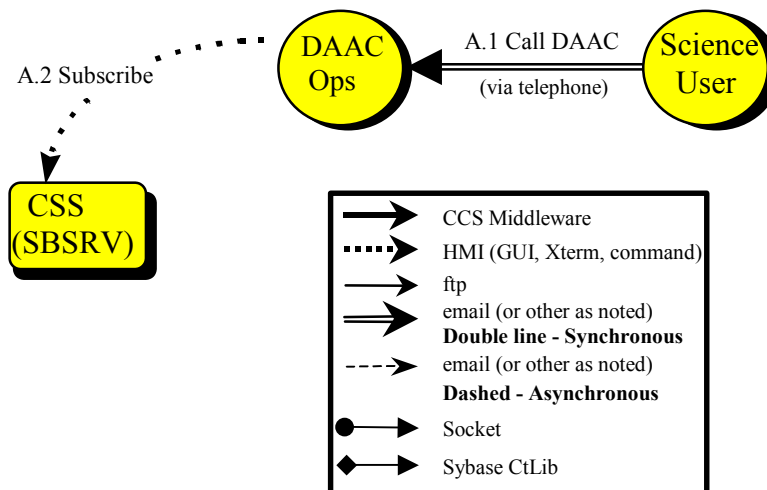
Figure 3.5.4.1-1. MODIS Standing Order Submittal Interaction Diagram

3.5.4.2 MODIS Standing Order Submittal Thread Interaction Table - Domain View

Table 3.5.4.2-1 provides the Interaction - Domain View: MODIS Standing Order Submittal.

Table 3.5.4.2-1. Interaction Table - Domain View: MODIS Standing Order Submittal

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
A.1	Call DAAC User Services	Science User	DAAC	None	DAAC User Services Advertises Phone number. Email address available.	The Science User calls the DAAC User Services staff, requesting all MOD35_L2, MOD07_L2, and MODVOLC granules to be sent to his/her workstation, via FtpPush. The Science User provides host name and address, directory for data placement, and user name/password for ECS to use when placing data. Note: This could be performed via e-mail as well as telephone.
A.2	Subscribe	DAAC User Services Representative	CSS (SBSRV)	None	MOD35_L2, MOD07_L2, and MODVOLC ESDT, with Insert Events	The DAAC User Services Representative submits a Standing Order subscription for MOD35_L2, MOD07_L2, and MODVOLC: Insert events. The action is to electronically push the product to the science user's machine.

3.5.4.3 MODIS Standing Order Submittal Thread Component Interaction Table

Table 3.5.4.3-1 provides the Component Interaction - Domain View: MODIS Standing Order Submittal.

Table 3.5.4.3-1. Component Interaction Table: MODIS Standing Order Submittal (1 of 2)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
A.2.1	Startup SBSRV GUI	DAAC User Services Representative	EcSbGui	Xterm	The DAAC User Services Representative invokes SBSRV GUI application.

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*Table 3.5.4.3-1. Component Interaction Table: MODIS Standing Order Submittal (2 of 2)*

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
A.2.2	Create & Submit Subscription from GUI	DAAC User Services Representative	EcSbGui, EcMsAcRegUserSrvr	Xterm	The DAAC User Services Representative represents him/herself as the Science User. The DAAC Operator brings up the GUI and clicks the button to create a new subscription. A list of events is displayed, from which the operator can choose to subscribe. The DAAC Operator selects the MOD35_L2, MOD07_L2, and MODVOLC: Insert events for the subscription. Two actions (besides notification) are available from the Subscription Server at this time. Ftp Push as a distribution mechanism is selected via a GUI button. Other parameters required for FtpPush, including the Science User's host name, target directory, ftp user name, and ftp password, and are input via the GUI. The other option is an Ftp Pull, also selected via a GUI button. There are no other parameters required for this option. The user profile must be retrieved from the MSS to make the subscription request.
A.2.3	Retrieve Distribution Options	EcSbGui	EcCsRegistry	CCS Middleware	The Subscription Server GUI retrieves distribution options from the ECS Configuration Registry (ftp push, ftp pull).
A.2.4	Submit Subscription	EcSbGui	EcSbSubServer	CCS Middleware	Submit the subscription to the Subscription Server (SBSRV). This is accomplished with the EcClSubscription interface class. The correct Subscription Server is determined via a Server UR, declared in configuration.
A.2.5	Store a Subscription	EcSbSubServer	SYBASE ASE	CtLib	The subscription is stored in the SYBASE ASE Database.

3.5.5 MODIS Standing Order Support Thread

This thread shows how the system supports standing orders for data granules. The granules utilized are MOD35_L2, MOD07_L2, and MODVOLC.

3.5.5.1 MODIS Standing Order Support Thread Interaction Diagram - Domain View

Figure 3.5.5.1-1 depicts the MODIS Standing Order Support Interaction.
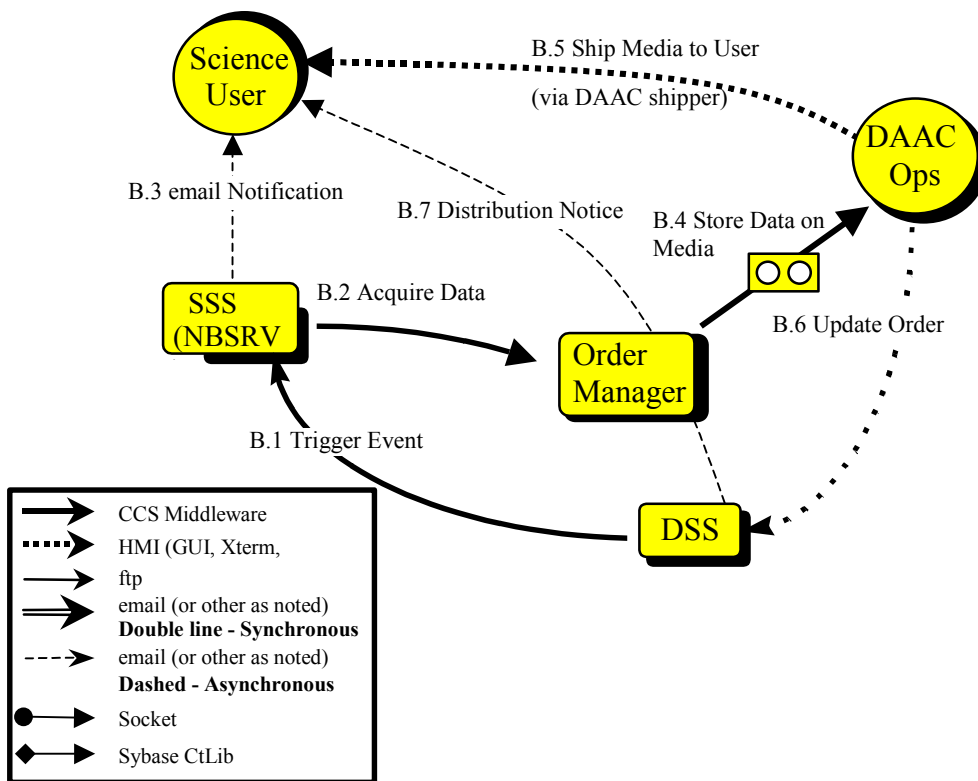
Figure 3.5.5.1-1. MODIS Standing Order Support Interaction Diagram

3.5.5.2 MODIS Standing Order Support Thread Interaction Table - Domain View

Table 3.5.5.2-1 provides the Interaction - Domain View: MODIS Standing Order Support.

***Table 3.5.5.2-1. Interaction Table - Domain View: MODIS Standing Order Support
(1 of 2)***

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
B.1	Trigger Event	DSS (SDSRV)	SSS (NBSRV)	None	None	This thread picks up with fulfilling the standing order for MODIS data. The Science Data Server sends an event trigger to the Subscription Server when a subscription event has occurred on one of the MOD35_L2, MOD07_L2, or MODVOLC data types.
B.2	Acquire Data	SSS (NBSRV)	Order Manager (OMS)	None	None	The Spatial Subscription Server (NBSRV) assists with fulfilling the standing order by the Science User for MODIS granules. The Spatial Subscription Server sends a Request to Acquire data from the Order Manager Server, via one of the hard media, for the Science User.
B.3	E-mail Notification	SSS (NBSRV)	Science User	None	None	Send e-mail notification to the Science User, notifying him/her there is a newly inserted MODIS granule, which meets the specified constraints of interest. The notification message includes the UR, ESDT name and version ID of the granule as well as the qualification criteria that it matched.
B.4	Store Data on Media	PDS	PDS	None	None	The PDS copies the MODIS granule's files to one of the hard media types and marks the order as "Ready to Ship."
B.5	Ship Media to User	DAAC PDS Technician	Science User	None	None	A DAAC PDS Technician collects tape, media label, shipping label and packing list. He/She labels tape, encloses tape and packing list in shipping container and labels shipping container. The DAAC uses a commercial shipping vendor for delivery to the Science User.

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Table 3.5.5.2-1. Interaction Table - Domain View: MODIS Standing Order Support (2 of 2)

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
B.6	Update Order	DAAC PDS Tech.	DSS	None	None	A DAAC PDS Technician marks the order as "Shipped".
B.7	Distribution Notice	DSS	Science User	None	None	Send an e-mail notification to the Science User; notifying him/her the newly inserted MODIS data of interest has been shipped to their shipping address.

3.5.5.3 MODIS Standing Order Support Thread Component Interaction Table

Table 3.5.5.3-1 provides the Component Interaction: MODIS Standing Order Support.

Table 3.5.5.3-1. Component Interaction Table: MODIS Standing Order Support (1 of 5)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
B.1.1	Insert Event	EcDsScienceDataServer	EcSbSubServer	CCS Middleware	Upon successful insertion of MODIS granules, an Insert event is triggered for each granule. These are qualified events. Along with the trigger are criteria metadata qualifiers. The correct Subscription Server (EcSbSubServer) is determined from the Science Data Server (EcDsScienceDataServer) configuration. The correct event to trigger is determined from the events file, which was populated during Earth Science Data Type (ESDT) installation. The Universal Reference (UR) and event id of the inserted granule is provided when the event is triggered.
B.1.2	Retrieve Subscriptions	EcSbSubServer	SYBASE ASE	CtLib	The Subscription Server queries the SYBASE ASE database determining which subscriptions need to be activated, or fired. Each query "hit" is an activated subscription and executes independently. Currently, all the subscriptions on this qualified event are not qualified; so all subscriptions are "hits."

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Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
B.2.1	Connect to SDSRV	EcSbSub Server	EcDsScie nceDataS erver, EcMsAcR egUserSr vr	CCS Middleware	To fulfill a standing order for MODIS data, the Subscription Server begins a session with the Science Data Server, on behalf of the subscription user. Check the subscription's priority based upon the subscriber's profile. The appropriate Science Data Server is selected by the Granule Universal Reference (UR) provided when the event was triggered. This is pertinent if there are multiple Science Data Servers in use at one DAAC in one mode.
B.2.2	Add PGE granule's UR to Session	EcSbSub Server	EcDsScie nceDataS erver	CCS Middleware	The Subscription Server establishes the data context of the session with the Science Data Server by adding the input granules to the session. The Granule UR of each input granule is added to the ESDT ReferenceCollector.
B.2.3	Retrieve Granule Metadata from Inventory	EcDsScie nceDataS erver	SYBASE ASE/SQS	CtLib	The Science Data Server completes establishing the data context by retrieving the metadata for the requested granules from the SYBASE ASE/SQS database. The metadata for each granule is passed back to the reference objects for each granule.
B.2.4	Acquire Data	EcSbSub Server	EcDsScie nceDataS erver	CCS Middleware	The Subscription Server fulfills the standing order for a MODIS granule by submitting an acquire request for the granule. The acquire request is for an Ftp Push or Ftp Pull of all granules in the ESDT ReferenceCollector. This request is asynchronous; meaning the return of the "submit" call of the request only contains the status of the request's submittal. The request asks for an e-mail notification for the user. The acquire request structure is hard-coded within the Subscription Server. For the granule referenced in the acquire request, the Science Data Server creates a file containing the granule's metadata before passing the data to be distributed.

Table 3.5.5.3-1. Component Interaction Table: MODIS Standing Order Support
(3 of 5)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
B.2.5	Create Staging Disk	EcDsScienceDataServer	EcDsStRequestManagerServer	CCS Middleware	The Science Data Server sends requests to the Storage Management Request Manager to allocate space on staging disks for the granule metadata files. The amount of staging disk to request is calculated from an in-memory copy of the metadata file.
B.2.6	Create Metadata	EcDsScienceDataServer	EcDsStRequestManagerServer	CCS Middleware	The Science Data Server creates the metadata files on the staging disks for the requested granules.
B.2.7	Distribute Granules, Synchronous	EcDsScienceDataServer	EcDsDistributionServer	CCS Middleware	The Science Data Server submits a request to the Distribution Server. The request includes a reference to the metadata files. Other parameters from the acquire request are passed to the Distribution Server including media types (8mm, DTF, DLT or CD-ROM). At this point all necessary data has been pulled from the DB.
B.2.8	Create Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager to allocate space on staging disks for the granule files in the archive. The amount of staging disk to request is calculated from the file sizes in the information passed in the Distribution Request. (Note: A packing list is created in step B.4.2)
B.2.9	STMGT Retrieve	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Request Manager to retrieve data from the archive. The Storage Management Cache Manager copies the files from the archive to the read only cache.
B.2.10	Link data files to Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server links the data files in the read-only cache to the staging disk area.

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Table 3.5.5.3-1. Component Interaction Table: MODIS Standing Order Support (4 of 5)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
B.2.1 1	Link metadata files to Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager to link the metadata files. The metadata files are provided on staging areas initially allocated for Science Data Server.
B.3.1	Send Notification	EcSbSubServer	Science User	E-mail	The Subscription Server builds an e-mail notification that the user's subscription on the MODIS data insert event has been fired. This notification identifies the Event, the subscription ID, and the Universal Reference (UR) inserted and the previously supplied User String.
B.5.1	Determine request is ready for shipping	DAAC Ops - Distribution Technician	EcDsDdistGui	GUI	An Operator notes the request is ready for shipping on the Data Distribution Graphical User Interface (GUI) and the order includes the requested hard media just produced. The slot and stacker ID are included on the logs accessible to the operator for 8mm, DTF, or DLT tape or CD writer ID for the CD-ROM, so the operator knows which tapes to ship.
B.5.2	Ship Tapes	DAAC Ops - Data Technician	DAAC Ops - Data Technician	Internal	The labels for all media, as well as a shipping label for the package, are created manually. Using commercial shipping vendors (determined by DAAC policy), the DAAC Data Technician labels the tape, packages the tape(s) and packing list, labels the package, and ships the order to the address provided within the request.
B.6.1	Mark as Shipped	DAAC Ops - Data Tech.	EcDsDdistGui	GUI	Using the Data Distribution GUI, the Data Technician marks the request as "Shipped."

Table 3.5.5.3-1. Component Interaction Table: MODIS Standing Order Support (5 of 5)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
B.6.2	Update Distribution Request	EcDsDdistGui	EcDsDistributionServer	CCS Middleware	The Data Technician uses the Distribution Server to update the state of the request to "Shipped."
B.7.1	Build Distribution Notice	EcDsDistributionServer	EcDsDistributionServer	Internal	The Distribution Server builds an e-mail notification stating the user's order has been fulfilled. This notification includes the media ID, type and format of the request, UR, type and file names and sizes for each granule as well as a DAAC configurable preamble.
B.7.2	Send E-mail	EcDsDistributionServer	Science User	E-mail	The Distribution Server sends the distribution notice (e-mail) to the user. If the subscription is input by or for a registered user, the e-mail goes directly to the user – no interpretation is needed.

3.5.6 MODIS Standard Production Thread

This thread shows how the sequence of PGEs (PGE01, PGE02, PGE03) executes in a chained fashion, with the output of one PGE being used as the input of the next.

3.5.6.1 MODIS Standard Production Thread Interaction Diagram

Figure 3.5.6.1-1 depicts the MODIS Standard Production Thread Interaction.
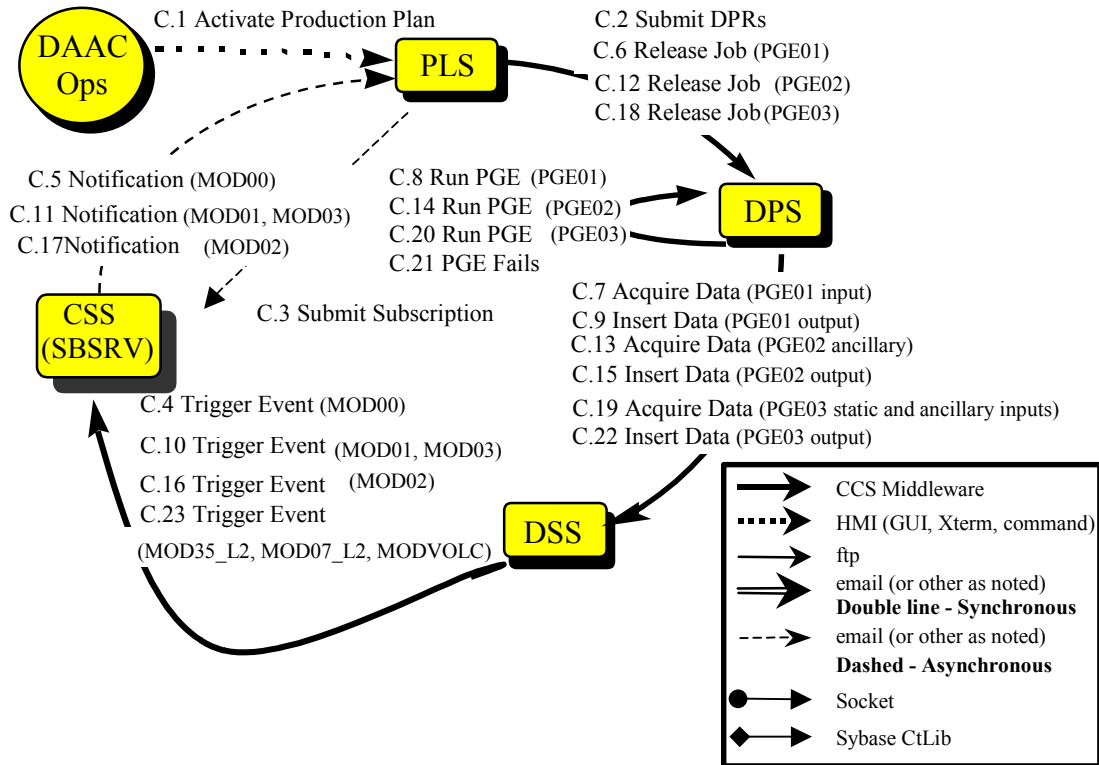
Figure 3.5.6.1-1. MODIS Standard Production Interaction Diagram

3.5.6.2 MODIS Standard Production Thread Interaction Table - Domain View

Table 3.5.6.2-1 provides the Interaction - Domain View: MODIS Standard Production.

Table 3.5.6.2-1. Interaction Table - Domain View: MODIS Standard Production (1 of 7)

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
C.1	Activate Production Plan	DAAC Production Planner	PLS (PLANG)	None	PGEs passed SSI&T. Plan already created.	The DAAC Production Planner activates a plan, which includes a DPR for PGE01. Plan created for PGE01, PGE02, and PGE03, with input granules IDs obtained for PGE01, and subscriptions submitted for input data for PGE02 and PGE03.

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
C.2	Submit DPRs	PLS (PLANG)	DPS (PRONG)	None	None	DPRs for PGE01 are submitted by the PLS "Offhold" (standby state) to the DPS. PGE02 and PGE03 are placed in the jobMgt queue "On Hold."PGE02 and PGE03 have dependencies on the previous DPRs (PGE02 needs PGE01 DPR, PGE03 needs PGE01 and PGE02 DPRs).
C.3	Submit Subscription	PLS (PLANG)	CSS (SBSRV)	None	None	The Planning Subsystem (PLS) submits a subscription to the Communications Subsystem (CSS) to select the desired MODIS data.
C.4	Trigger Event (MOD00)	DSS (SDSRV)	CSS (SBSRV)	None	The MOD000 has been inserted to DSS by Ingest.	The Data Server Subsystem (DSS) triggers MOD000: Insert event to the Communications Subsystem.
C.5	Notification	CSS (SBSRV)	PLS (PLANG)	None	PLS Subscriptions for MOD000:Insert event	The Communications Subsystem sends direct notification to the Planning Subsystem, notifying there are newly inserted MOD000 granules. Notifications include the Universal Reference (UR) of the granules produced.
C.6	Release Job (PGE01)	PLS (PLANG)	DPS (PRONG)	None	None	The Planning Subsystem sends a request to the Data Processing Subsystem releasing the job containing PGE01.

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
C.7	Acquire Data (PGE01 input)	DPS (PRONG)	DSS (SDSRV)	One MOD000 @ 6.2GB every 2 hours.	None	The Data Processing Subsystem submits an acquire request for MOD000, MOD01LUT and MOD03LUT via FtpPush to the Data Server Subsystem, for input to PGE01.
C.8	Run PGE (PGE01)	DPS (PRONG)	DPS (PRONG)	PGE01 creates 24 MOD01 granules/ 2 hours @355MB /granule and 24 MOD03 granules/ 2 hours @61MB/ granule	None	The Data Processing Subsystem runs PGE01, creating MOD01 and MOD03 granules.
C.9	Insert Data (PGE01 output)	DPS (PRONG)	DSS (SDSRV)	None	MOD01 and MOD03 ESDTs.	The Data Processing Subsystem sends requests for the archiving of the newly created MOD01 and MOD03 granules into the Science Data Server archive within the Data Server Subsystem.
C.10	Trigger Event (MOD01, MOD03)	DSS (SDSRV)	CSS (SBSRV; Subscription Server)	None	None	The Data Server Subsystem notifies the Communications Subsystem of the MOD01: Insert and MOD03: Insert events. Note: these are actually two different events, so there are two independent events triggered by the Communications Subsystem (Subscription Server - SBSRV).

Table 3.5.6.2-1. Interaction Table - Domain View: MODIS Standard Production (4 of 7)

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
C.11	Notification (MOD00)	CSS (SBSRV)	PLS (PLANG)	None	PLS Subscriptions for MOD01:Insert and MOD03:Insert events	The Communications Subsystem sends direct notification to the Planning Subsystem, notifying there are newly inserted MOD01 and MOD03 granules. Notifications include the Universal Reference (UR) of the granules produced.
C.12	Release Job (PGE02)	PLS (PLANG)	DPS (PRONG)	None	None	The Planning Subsystem sends a request to the Data Processing Subsystem releasing the job containing PGE02.
C.13	Acquire Data (PGE02 ancillary)	DPS (PRONG)	DSS (SDSRV)	MOD02LUT @357KB, from MODIS IT	MOD02LUT ESDT.	The Data Processing Subsystem (DPS) submits an acquire request to the Data Server Subsystem (DSS) for the ancillary product, MOD02LUT, via FtpPush, for input to PGE02. Note: the other input to PGE02 is the MOD01 granule that was created in step C.7.
C.14	Run PGE (PGE02)	DPS (PRONG)	DPS (PRONG)	One MOD02OBC, MOD021KM, MOD02HKM, and MOD02QKM@ 655 MB produced	None	The Data Processing Subsystem runs PGE02, creating the MOD02OBC, MOD021KM, MOD02HKM, and MOD02QKM granules.

Table 3.5.6.2-1. Interaction Table - Domain View: MODIS Standard Production (5 of 7)

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
C.15	Insert Data (PGE02 output)	DPS (PRONG)	DSS (SDSRV)	None	MOD02OBC, MOD021KM, MOD02HKM, AND MOD02QKM ESDTs.	The Data Processing Subsystem requests archiving of the newly created MOD02OBC, MOD021KM, MOD02HKM, and MOD02QKM granules into the Science Data Server archive within the Data Server Subsystem.
C.16	Trigger Event (MOD02)	DSS (SDSRV)	CSS (SBSRV)	None	None	The Data Server Subsystem notifies the Communications Subsystem of the MOD02OBC, MOD021KM, MOD02HKM, and MOD02QKM: Insert events.
C.17	Notification (MOD02)	CSS (SBSRV)	PLS (PLANG)	None	PLS Subscription for MOD02OBC, MOD021KM, MOD02HKM, AND MOD02QKM: Insert events.	The Data Server Subsystem sends direct notification to the Planning Subsystem, notifying there are newly inserted MOD02OBC, MOD021KM, MOD02HKM, and MOD02QKM granules. The notification message includes the Universal Reference (UR) of the granule.
C.18	Release Job (PGE03)	PLS (PLANG)	DPS (PRONG)	None	None	The Planning Subsystem sends a request to the Data Processing Subsystem releasing the job containing PGE03.

Table 3.5.6.2-1. Interaction Table - Domain View: MODIS Standard Production (6 of 7)

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
C.19	Acquire Data (PGE03 static and ancillary inputs)	DPS (PRONG)	DSS (SDSRV)	New Static and Ancillary Inputs	Static Inputs: MOD35ANC, MOD07LUT Ancillary Inputs: SEA_ICE, OZ_DAILY, GDAS_0ZF, REYNSST	The Data Processing Subsystem submits an acquire request to the Data Server Subsystem for PGE03 Products, via FtpPush, for input to PGE03. Note: The other inputs to PGE03 were created with PGE01 and PGE02 outputs and are still on the Data Processing Subsystem disk resources, so no acquires are necessary for those inputs.
C.20	Run PGE (PGE03)	DPS (PRONG)	DPS (PRONG)	1MOD35_L2, 1MOD07_L2, and 1MODVOLC @76+MB produced	None	The Data Processing Subsystem runs PGE03, creating MOD35_L2, MOD07_L2, and MODVOLC granules.
C.21	PGE Fails	DPS (PRONG)	DPS (PRONG)	None	None	One instance of the Data Processing Subsystem running PGE03 fails, due to the need for night data, but all input data is during the daylight. This is a planned Product Generation Executable (PGE) failure. Please pick up processing of this Failed PGE in Thread D of this MODIS scenario.
C.22	Insert Data (PGE03 output)	DPS (PRONG)	DSS (SDSRV)	None	MOD35_L2, MOD07_L2, and MODVOLC ESDTs.	The Data Processing Subsystem sends a request for the archiving of the newly created MOD35_L2, MOD07_L2, and MODVOLC granules into the Science Data Server archive within the Data Server Subsystem.

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
C.23	Trigger Event (MOD35_L2,MOD07_L2, MODVOLC)	DSS (SDSRV)	CSS (SBSRV)	None	None	The Data Server Subsystem notifies the Communications Subsystem of the MOD35_L2, MOD07_L2, and MODVOLC: Insert events. Completion of the support for a Standing order is shown in Thread E of this MODIS scenario.

3.5.6.3 MODIS Standard Production Thread Component Interaction Table

Table 3.5.6.3-1 provides the Component Interaction: MODIS Standard Production.

Table 3.5.6.3-1. Component Interaction Table: MODIS Standard Production (1 of 34)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.1.1	Startup Planning Workbench	DAAC Operator - Planner	EcPlWb	GUI	The DAAC Planner invokes the Planning Workbench (EcPlWb) by double clicking on the Planning Workbench icon.
C.1.2	Select Plan to Activate, Modify and Activate	DAAC Operator - Planner	EcPlWb	GUI	The Planner interacts with the Planning Workbench GUI to select a plan to activate (it was already created) and modify it with Data Processing Requests (DPRs) for chaining PGE01, PGE02 and PGE03. Input granules for PGE01 are identified in the Production Plan. (Note: scenario preconditions are stated above.)
C.1.3	Create DPR	EcPlWb	EcDpPrJobMgmt	CCS Middleware	The Planning Workbench sends the DPRID to the Data Processing Job Management Processor, a list of predecessor DPRs, and whether the DPR is waiting for external data.

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.2.1	Submit DPRs	EcDpPrJobMgmt	AutoSys	JIL	The Data Processing Job Management Processor for dependent execution submits the DPRs in the updated plan to the AutoSys. MOD000 covers 2 hours and MOD02 and MOD03 cover 5 minutes each. Therefore, the number of DPRs is one for PGE01 and between 22 and 24 each for PGE02 and PGE03 for a total of 45 to 49 for 2 hours depending on the data. The PGE01 job is automatically released, because all inputs are available and the production rules have been met, because input granules were referenced in DPR.
C.2.2	Initiate Job Processing	Event_daemon	EcDpPrEM	Command line	The event daemon initiates the Execution Manager (EcDpPrEM) containing the PGE01.
C.2.3	Connect to SDSRV	EcDpPrEM	EcDsScienceDataServer	CCS Middleware	The Execution Manager begins a session with the Science Data Server by connecting, in order to acquire the PGE01. The appropriate Science Data Server is selected by using the Granule UR of the PGE granule, which is defined in the Production plan and is part of the DPR. This is pertinent if there are multiple Science Data Servers in use at one DAAC in one mode.
C.2.4	Add granule's UR to the Session for a PGE	EcDpPrEM	EcDsScienceDataServer	CCS Middleware	The Execution Manager establishes the data context of the session with the Science Data Server by adding the granule's UR to the Earth Science Data Type (ESDT) ReferenceCollector for a PGE.

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.2.5	Retrieve Granule Metadata from Inventory	EcDsScienceDataServer	SYBASE ASE/SQS	CtLib	The Science Data Server completes establishing the data context by retrieving the metadata for the requested PGE granule from the SYBASE ASE/SQS database. The metadata for the PGE granule is passed back to the reference objects for each granule.
C.2.6	Acquire Data	EcDpPrEM	EcDsScienceDataServer	CCS Middleware	The Execution Manager sends requests for Product Generation Executable (PGE) Tar Files to the Science Data Server by submitting an acquire request. The acquire request is for an FtpPush of all granules in the ESDT ReferenceCollector. This request is synchronous (meaning the return of the "submit" call of the request contains the results of the request). This means the response is not sent until the PGE granule files have been transferred (via the Ftp service) to the Data Processing Subsystem (DPS) disks. This request asks for no distribution notice to be sent. The acquire request structure is hard-coded.
C.2.7	Create Staging Disk	EcDsScienceDataServer	EcDsStRequestManagerServer	CCS Middleware	The Science Data Server sends requests to the Storage Management Request Manager to allocate space on staging disks for the granule metadata files. The amount of staging disk to request is calculated from an in-memory copy of the metadata file.
C.2.8	Create Metadata file	EcDsScienceDataServer	EcDsScienceDataServer	CCS Middleware	The Science Data Server creates a file containing the PGE granule's metadata before passing the data to the Distribution Server.

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.2.9	Distribute Granules, Synchronous	EcDsScienceDataServer	EcDsDistributionServer	CCS Middleware	The Science Data Server submits a request to the Distribution Server. The request includes, for each granule, a reference to the metadata file as well as all data files. Other parameters from the acquire request are passed to the Distribution Server.
C.2.10	Claim Ownership	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager to be passed on to the Staging Disk Server to claim ownership of the staging disk area created by the Staging Disk Server.
C.2.11	Compress Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager to be passed on to the Staging Disk Server to compress the staging disk area.
C.2.12	Create Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager to be forwarded to the Staging Disk Server to allocate space on staging disks for the granule files in the archive. The amount of staging disk to request is calculated from the file sizes in the information passed in the Distribution Request.

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Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.2.13	STMGT Retrieve	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager to be forwarded to the Archive Server to retrieve the archived PGE granule file. The files are compressed after they are retrieved using the compression type specified. This results in the file being staged to read-only cache disks. This means all files needed to fulfill the distribution request are on disk and ready to be linked. The correct archive object to request is determined from the information provided by the Science Data Server in the distribution request. This returns references to the files in the read-only cache.
C.2.14	Link files to Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends a request to the Storage Management Request Manager, which are forwarded to the Staging Disk Server to link to the data files in the read-only cache.
C.2.15	Link files to Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager to be forwarded to the Staging Disk Server to link files to staging disk areas.
C.2.16	FtpPush Files	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager for Ftp Pushes via a Resource Manager Factory. The appropriate resource manager is selected via the media type provided to the resource factory (FtpPush, in this case). The files, host, and location are all determined from the information provided in the original acquire request.

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Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.2.17	Ftp Files	EcDsStFtpServer	Operating System ftp daemon (EcDpPrEM)	Ftp	The FTP Server performs the actual Ftp of the PGE files to the Data Processing Execution Manager host computer.
C.3.1	Submit Subscription	EcPlSubMgr	EcSbSubServer	Message Passing Mechanism	The Planning Subsystem's Subscription Manager submits a subscription to the Communications Subsystem's Subscription Server to select the desired MODIS data.
C.4.1	Trigger Event (MOD000)	EcDsScienceDataServer	EcSbSubServer	CCS Middleware	Upon successful insertion of the MOD000 granules, the MOD000: Insert event is triggered by the Communications Subsystem's Subscription Server, one per granule. The appropriate Subscription Server is obtained from the Science Data Server configuration. The correct events to trigger are determined from the "events" file, where they were stored when the Earth Science Data Type (ESDT) was installed in the Science Data Server. Provided with the event triggering is the UR of the inserted granule.
C.4.2	Retrieve Subscriptions	EcSbSubServer	SYBASE ASE	CtLib	The Subscription Server queries the SYBASE ASE database determining which subscriptions need to be activated, or fired. Each query "hit" is an activated subscription and executes independently.

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.5.1	Asynchronous Direct Notification	EcSbSubServer	EcPlSubMgr	Message Passing Mechanism	The Subscription Server notifies the Planning Subsystem's Subscription Manager there are new MOD000 granules available. The granule Universal Reference (UR) is passed in the notification to the user, along with a reference to the subscription that is being fulfilled. Direct Notification is to a Queue name (a Message Passing Mechanism) the Planning Subscription Manager provided when the subscription was submitted.
C.5.2	Connect to Science Data Server	EcPlSubMgr	EcDsScienceDataServer	CCS Middleware	The Planning Subscription Manager begins a session with the Science Data Server to determine the use of the new granule. The appropriate Science Data Server is selected by using the Granule UR in the notification message. This is pertinent if there are multiple Science Data Servers in use at one DAAC in one mode.
C.5.3	Add granule's UR to the Session for a PGE	EcPlSubMgr	EcDsScienceDataServer	CCS Middleware	The Planning Subscription Manager establishes the data context of the session with the Science Data Server by adding the new granule's UR to the ESDT ReferenceCollector for a PGE.
C.5.4	Retrieve Granule Metadata from Inventory	EcDsScienceDataServer	SYBASE ASE/SQS	CtLib	The Science Data Server completes establishing the data context by retrieving the metadata for the requested PGE granule from the SYBASE ASE/SQS database. The metadata for the PGE granule is passed back to the reference objects for each granule.

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Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.5.5	Inspect Granule Value Parameters	EcPlSubMgr	EcDsScienceDataServer	CCS Middleware	The Planning Subscription Manager checks the new granule's metadata attributes (type, version, file size and temporal range), to determine which, if any, jobs can use it as input.
C.5.6	Match Granules	EcPlSubMgr	SYBASE ASE	CtLib	The Planning Subscription Manager queries the PDPS database to determine if any PGEs are waiting for this granule. If so, the size and granule UR are written.
C.6.1	Release Job Request	EcPlSubMgr	EcDpPrJobMgmt	CCS Middleware	The Planning Subscription Manager sends a request to the Data Processing Job Management Processor to release the job containing PGE01.
C.6.2	Force Start Job	EcDpPrJobMgmt	Event_daemon	CCS Middleware	The Data processing Job Management sends a request to the event daemon to release the job containing PGE01.
C.6.3	Initiate Job Processing	Event_daemon	EcDpPrEM	Command line	The event daemon initiates the Data Processing Execution Manager.
C.7.1	Connect to Science Data Server	EcDpPrEM	EcDsScienceDataServer	CCS Middleware	The Data Processing Execution Manager invokes the Data Manager, which begins a session with the Science Data Server by connecting. The appropriate Science Data Server is selected by using the Granule UR of the input granule. This is pertinent if there are multiple Science Data Servers in use at one DAAC in one mode.

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Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.7.2	Add PGE granule's UR to Session	EcDpPrEM	EcDsScience DataServer	CCS Middleware	The Data Manager invoked by Data Processing Execution Manager establishes the data context of the session with the Science Data Server by adding the input granule (MOD000) to the session. The Granule UR of the input granule is added to the ESDT ReferenceCollector. Note that this sequence is performed for each input granule, one at a time.
C.7.3	Retrieve Granule Metadata from Inventory	EcDsScien ceDataSer ver	SYBASE ASE/SQS	CtLib	The Science Data Server completes establishing the data context by retrieving the metadata for the requested granule from the SYBASE ASE/SQS database. The metadata for each granule is passed back to the reference objects for each granule.
C.7.4	Acquire Data	EcDpPrEM	EcDsScience DataServer	CCS Middleware	The Data Processing Subsystem Data Manager invoked by Data Processing Execution Manager requests granules by submitting an acquire request for those granules. The acquire request is for an FtpPush of all granules in the ESDT ReferenceCollector. This request is synchronous, meaning that the return of the "submit" call of the request contains the results of the request. This means that the response is not sent until the granule files have been transferred (via the Ftp service) to the Data Processing Subsystem disks. This request asks for no distribution notice to be sent. The acquire command structure is hard-coded.
C.7.5	Create Staging Disk	EcDsScien ceDataSer ver	EcDsStReque stManagerSer ver	CCS Middleware	The Science Data Server sends requests to the Storage Management Request Manager to allocate space on staging disks for the granule metadata files. The amount of staging disk to request is calculated from an in-memory copy of the metadata file.

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.7.6	Create Metadata file	EcDsScienceDataServer	EcDsScienceDataServer	CCS Middleware	For each granule referenced in the acquire request, the Science Data Server creates a file containing the granule's metadata before passing the data to the Distribution Server.
C.7.7	Distribute Granules, Synchronous	EcDsScienceDataServer	EcDsDistributionServer	CCS Middleware	The Science Data Server submits a request to the Distribution Server. The request includes, for each granule, a reference to the metadata file as well as all data files. Other parameters from the acquire request are passed to the Distribution Server.
C.7.8	Claim Ownership	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager to claim ownership of the staging disk area created by the Staging Disk Server.
C.7.9	Create Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Request Manager, which are forwarded to the Staging Disk Server to allocate space on staging disks for the granule files in the archive. The amount of staging disk to request is calculated from the file sizes in the information passed in the Distribution Request.

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Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.7.10	STMGT Retrieve	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Request Manager, which is forwarded to the Archive Server to retrieve data from the archive. The Cache Manager copies the files from the archive to the read only cache. This results in the file being staged to read-only cache disks. This means all the files needed to fulfill the distribution request are on disk, and ready to be copied. The correct archive object to request is determined from the information provided by the Science Data Server in the distribution request. This returns references to the files in the read-only cache.

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Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.7.11	Link files to Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server links the files from the read-only cache into the staging disk with a request sent to the Storage Management Request Manager, which is forwarded to the Staging Disk Server.
C.7.12	Link files to Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager to be forwarded to the Staging Disk Server to link the metadata files from the archive to the staging disk area.
C.7.13	FtpPush Files	EcDsDistributionServer	EcDsStRequestManagerServer (then to EcDsStFtpServer)	CCS Middleware	The Distribution Server now creates the Resource manager for Ftp Pushes via a Resource Manager Factory. The correct resource manager is determined from the Media Type handed to the resource factory (FtpPush, in this case). The correct FTP Server is determined from configuration within the resource factory. The files, host, and location are all determined from the information provided in the original acquire request.
C.7.14	Ftp Files	EcDsStFtpServer	Operating System ftp daemon (EcDpPrEM)	Ftp	The FTP Server requests the actual Ftp of the files to the Data Processing Execution Manager host computer via the Operating System Ftp daemon.
C.8.1	Get Metadata Configuration File	EcDpPrEM	EcDsScienceDataServer	CCS Middleware	The Data Processing Subsystem Data Manager process invoked by Data Processing Execution Manager gets the metadata configuration file of the output data's ESDT (MOD01 and MOD03) from the Science Data Server. The data type and version are obtained from the PDPS database; the appropriate client name is obtained from the configuration file.

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Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.8.2	Run PGE	EcDpPrRunPGE	PGE<PGE01>	Command line	The Data Processing Run PGE (EcDpPrRunPGE) process executes PGE01. Any output files are placed in the output directory. The directory path is established by using a root, which was established by configuration and the specific directory by the job ID. This disk root is cross-mounted by the Data Processing Subsystem and the Data Server Subsystem's Science Data Server and Storage Management. This is to ensure they are directly available to the Data Server Subsystem to be archived.
C.9.1	Connect to SDSRV	EcDpPrEM	EcDsScienceDataServer	CCS Middleware	The Data Processing Execution Manager invokes a Data Manager process, which begins a session with the Science Data Server by connecting.
C.9.2	Insert Data	EcDpPrEM	EcDsScienceDataServer	CCS Middleware	The Data Manager invoked by Data Processing Execution Manager sends requests to the Science Data Server to insert the newly created files for the MOD01 and MOD03 granules. An insert request, containing the names of the files comprising the granule, is created for each granule. The structure of the insert request is hard-coded. The Science Data Server validates metadata and determines the archived names of the files. Note: These inserts occur one granule at a time.

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.9.3	STMGT Store	EcDsScienceDataServer	EcDsStRequestManagerServer	CCS Middleware	The Science Data Server sends requests to the Storage Management Request Manager, which is forwarded to the Archive Server for the files to be archived. The Archive Server must be able to read the inserted files directly from the Data Processing Subsystem's disks they are residing on. The appropriate archive object is requested by the Archive ID input during ESDT installation. For files having backup archive IDs and/or off-site IDs in the collection level metadata, backup copies are made in locations determined by the values of the backup archive ID or off-site ID.
C.9.4	Add a Granule to Inventory	EcDsScienceDataServer	SYBASE ASE/SQS	CtLib	The validated metadata is parsed and added to the inventory of the Science Data Server.

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.10.1	Trigger Event	EcDsScienceDataServer	EcSbSubServer	CCS Middleware	Upon successful insertion of the MOD01 and MOD03 granules, the MOD01: Insert and the MOD03: Insert, events are triggered, one per granule. The appropriate Subscription Server is selected from the Science Data Server configuration. The inserted granule Universal Reference (UR) is provided when the event is triggered.
C.10.2	Retrieve Subscriptions	EcSbSubServer	SYBASE ASE	CtLib	The Subscription Server queries the SYBASE ASE database determining which subscriptions need to be activated or fired. Each query "hit" is an activated subscription and executes independently.
C.11.1	Asynchronous Direct Notification	EcSbSubServer	EcPlSubMgr	Message Passing Mechanism	The Subscription Server notifies the Planning Subscription Manager there are new MOD01 and MOD03 granules available. The granule UR is passed in the notification to the user, along with a reference to the subscription being fulfilled. Direct Notification is to a QueueName (a Message Passing Mechanism) the Planning Subscription Manager is provided when the subscription was submitted.
C.11.2	Connect to SDSRV	EcPlSubMgr	EcDsScienceDataServer	CCS Middleware	The Planning Subscription Manager begins a session with the Science Data Server to determine the use of the new granule. The appropriate Science Data Server is determined by using the Granule UR in the notification message. This is pertinent if there are multiple Science Data Servers in use at one DAAC in one mode.

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Table 3.5.6.3-1. Component Interaction Table: MODIS Standard Production (15 of 34)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.11.3	Add granule's UR to Session for a PGE	EcPlSubMgr	EcDsScienceDataServer	CCS Middleware	The Planning Subscription Manager establishes the data context of the session with the Science Data Server by adding the new granule's UR to the ESDT ReferenceCollector for a PGE.
C.11.4	Retrieve Granule Metadata from Inventory	EcDsScienceDataServer	SYBASE ASE/SQS	CtLib	The Science Data Server completes establishing the data context by retrieving the metadata for the requested PGE granule from the SYBASE ASE/SQS database. The metadata for the PGE granule is passed back to the reference objects for each granule.
C.11.5	Inspect Granule Value Parameters	EcPlSubMgr	EcDsScienceDataServer	CCS Middleware	The Planning Subscription Manager checks the new granule's metadata attributes (type, version, file size and temporal range), to determine which, if any, jobs can use it as input.
C.11.6	Match Granules	EcPlSubMgr	SYBASE ASE	CtLib	The Planning Subscription Manager queries the PDPS database to determine if any PGEs are waiting for these granules. If so, the size and granule URs are written.
C.12.1	Release Job Request	EcPlSubMgr	EcDpPrJobMgmt	CCS Middleware	The Planning Subscription Manager tells the Data Processing Job Management Processor to release the job containing PGE02.
C.12.2	Force Start Job	EcDpPrJobMgmt	Event_daemon	CCS Middleware	The Data Processing Job Management Processor calls the event daemon to releases the job containing PGE02.
C.12.3	Initiate Job Processing	Event_daemon	EcDpPrEM	Command line	The event daemon initiates the Data Processing Execution Manager to begin processing of the job containing the PGE02.

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.13.1	Connect to SDSRV	EcDpPrEM	EcDsScienceDataServer	CCS Middleware	The Data Processing Execution Manager invokes the Data Manager, which begins a session with the Science Data Server by connecting. The appropriate Science Data Server is selected by using the Granule UR of the input granule or from the Subscription Server notification. This is pertinent if there are multiple Science Data Servers in use at one DAAC in one mode.
C.13.2	Add PGE granule's UR to Session	EcDpPrEM	EcDsScienceDataServer	CCS Middleware	The Data Manager invoked by Data Processing Execution Manager establishes the data context of the session with the Science Data Server by adding the input granule (MOD02LUT) to the session. The Granule UR of each input granule is added to the ESDT ReferenceCollector. Note: This sequence is performed for each input granule, one at a time.
C.13.3	Retrieve Granule Metadata from Inventory	EcDsScienceDataServer	SYBASE ASE/SQS	CtLib	The Science Data Server completes establishing the data context by retrieving the metadata for the requested granules from the SYBASE ASE/SQS database. The metadata for each granule is passed back to the reference objects for each granule.

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.13.4	Acquire Data	EcDpPrEM	EcDsScienceDataServer	CCS Middleware	The Data Manager invoked by Data Processing Execution Manager requests MOD02LUT ancillary granules from the Science Data Server by submitting an acquire request for those granules. The acquire request is for an FtpPush of all granules in the ESDT ReferenceCollector. This request is synchronous, meaning that the return of the "submit" call of the request contains the results of the request. This means that the response is not sent until the granule files have been transferred (via the Ftp service) to the Data Processing Subsystem's disks. This request asks for no distribution notice to be sent. The acquire request structure is hard-coded.
C.13.5	Create Staging Disk	EcDsScienceDataServer	EcDsStRequestManagerServer	CCS Middleware	The Science Data Server sends requests to the Storage Management Request Manager to be forwarded to the Staging Disk Server, which allocates space on staging disks for the granule metadata files. The amount of staging disk to request is calculated from an in-memory copy of the metadata file.
C.13.6	Create Metadata file	EcDsScienceDataServer	EcDsScienceDataServer	CCS Middleware	For each granule referenced in the acquire request, the Science Data Server creates a file containing the granule's metadata before passing the data to the Distribution Server.

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Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.13.7	Distribute Granules, Synchronous	EcDsScienceDataServer	EcDsDistributionServer	CCS Middleware	The Science Data Server submits a request to the Distribution Server. The request includes, for each granule, a reference to the metadata file as well as all data files. Other parameters from the acquire request are passed to the Distribution Server.
C.13.8	Claim Ownership	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager to claim ownership of the staging disk area created by the Staging Disk Server.
C.13.9	Create Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager to be forwarded to the Staging Disk Server to allocate space on staging disks for the granule files in the archive. The amount of staging disk to request is calculated from the file sizes in the information passed in the Distribution Request.

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.13.10	Storage Management Retrieve	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager to be forwarded to the Archive Server to retrieve the granule file archived. This results in the file being staged to read-only cache disks. This means all files needed to fulfill the distribution request are on disk, and ready to be copied. The correct archive object to request is determined from the information provided by the Science Data Server in the distribution request. This returns references to the files in the read-only cache.
C.13.11	Link files to Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server links the files from the read-only cache into the staging disk by sending a request to the Storage Management Request Manager, which forwards the request to the Staging Disk Server.
C.13.12	Link files to Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer (then to EcDsStStagingDiskServer)	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager, which forwards the request the Staging Disk Server to link metadata files from the staging disk area created by the Science Data Server to the staging disk area created by the Distribution Server.

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Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.13.14	FtpPush Files	EcDsDistrib utionServer	EcDsStFtpServ er	CCS Middleware	The Distribution Server now creates the Resource manager for Ftp Pushes via a Resource Manager Factory. The correct resource manager is determined from the media type handed to the resource factory (FtpPush, in this case). The correct FTP Server is determined from the configuration within the resource factory. The files, host, and location are all determined from the information provided in the original acquire command.
C.13.15	Ftp Files	EcDsStFtpS erver	Operating System ftp daemon (EcDpPrEM)	Ftp	The FTP Server requests the actual Ftp of the files via the Op System Ftp daemon to the Data Processing Execution Manager host computer.
C.14.1	Get Metadata Configurat ion File	EcDpPrEM	EcDsScienceD ataServer	CCS Middleware	The Data Processing Execution Manager gets the metadata configuration file of the output data's ESDTs (MOD02OBC, MOD021KM, MOD02HKM, and MOD02QKM). Data type and version are from the PDPS database; the appropriate client name is from the configuration file.

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.14.2	Run PGE	EcDpPrRun PGE	PGE<PGE02>	Command line	PGE02 is executed. Output MOD02OBC, MOD021KM, MOD02HKM, and MOD02QKM files are placed in the output directory on the Science Hardware disks. The directory path is established by using a root, which was established by configuration and the specific directory by the job ID. This disk root is cross-mounted by the Data Processing Subsystem and the Data Server Subsystem's Science Data Server and Storage Management.

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Table 3.5.6.3-1. Component Interaction Table: MODIS Standard Production (21 of 34)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.15.1	Connect to Science Data Server	EcDpPrEM	EcDsScienceDataServer	CCS Middleware	The Data Processing Execution Manager begins a session with the Science Data Server by connecting.
C.15.2	Insert Data	EcDpPrEM	EcDsScienceDataServer	CCS Middleware	The Data Processing Execution Manager invokes the Data Manager, which requests the insertion of the newly created files for the MOD02OBC, MOD021KM, MOD02HKM, and MOD02QKM granules into the Science Data Server. An insert request, containing the names of the files comprising the granule, is created for each granule. The structure of the insert request is hard-coded. The Science Data Server validates metadata and determines the archived names of the files.

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.15.3	Storage Manage ment Store	EcDsScie nceDataS erver	EcDsStRequestM anagerServer	CCS Middleware	The Science Data Server sends requests to the Storage Management Request Manager to archive the files. The Request Manager forwards the archive request to the Archive Server. The Archive Server must be able to read the inserted files directly from the Data Processing Subsystem's disks that they are residing on. For files having backup archive IDs and/or off-site IDs, backup copies are made in locations determined by the values of the backup archive ID and off-site ID.
C.15.4	Add a Granule to Inventor y	EcDsScie nceDataS erver	SYBASE ASE/SQS	CtLib	The validated metadata is parsed and added to the inventory of the Science Data Server.
C.16.1	Trigger Event	EcDsScie nceDataS erver	EcSbSubServer	CCS Middleware	Upon successful insertion of MOD02OBC, MOD021KM, MOD02HKM, and MOD02QKM granules, the MOD02OBC, MOD021KM, MOD02HKM, and MOD02QKM: Inserts, events are triggered for each granule. The appropriate Subscription Server is determined from the Science Data Server configuration. The inserted granule UR is provided when the event is triggered.
C.16.2	Retrieve Subscri ptions	EcSbSub Server	SYBASE ASE	CtLib	The Subscription Server queries the SYBASE ASE database determining which subscriptions need to be activated or fired. Each query "hit" is an activated subscription and executes independently.

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Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.17.1	Asynchron ous Direct Notification	EcSbSub Server	EcPlSubMgr	Message Passing Mechanism	The Subscription Server notifies the Planning Subscription Manager there are new MOD02OBC, MOD021KM, MOD02HKM, and MOD02QKM granules available. The granule UR is passed in the notification to the user, along with a reference to the subscription being fulfilled. Direct Notification is to a QueueName (a Message Passing Mechanism) the Planning Subscription Manager provided when the subscription was submitted.
C.17.2	Connect to SDSRV	EcPlSub Mgr	EcDsScienceData Server	CCS Middleware	The Planning Subscription Manager begins a session with the Science Data Server by connecting, in order to determine the use of the new granule. The appropriate Science Data Server is determined by using the Granule UR in the notification message. This is pertinent if there are multiple Science Data Servers in use at one DAAC in one mode.
C.17.3	Add PGE granule's UR to Session	EcPlSub Mgr	EcDsScienceData Server	CCS Middleware	The Planning Subscription Manager establishes the data context of the session with the Science Data Server by adding the new granule's UR of the PGE granule to the ESDT ReferenceCollector.
C.17.4	Retrieve Granule Metadata from Inventory	EcDsSci enceData Server	SYBASE ASE/SQS	CtLib	The Science Data Server completes establishing the data context by retrieving the metadata for the requested PGE granule from the SYBASE ASE/SQS database. The metadata for the PGE granule is passed back to the reference objects for each granule.

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Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.17.5	Inspect Granule Value Parameters	EcPlSubMgr	EcDsScienceDataServer	CCS Middleware	The Planning Subscription Manager checks the new granule's metadata attributes (type, version, file size and temporal range), to determine which, if any, jobs can use it as input.
C.17.6	Match Granules	EcPlSubMgr	SYBASE ASE	CtLib	The Planning Subscription Manager queries the PDPS database to determine if any PGEs are waiting for this granule. If so, the size and granule UR are written.
C.18.1	Release Job Request	EcPlSubMgr	EcDpPrJobMgmt	CCS Middleware	The Planning Subscription Manager tells the Data Processing Job Management to release the job containing PGE03.
C.18.2	Force Start Job	EcDpPrJobMgmt	Event_daemon	CCS Middleware	The Data Processing Job Management calls the event daemon to release the job containing PGE03.
C.18.3	Initiate Job Processing	Event_daemon	EcDpPrEM	Command line	The event daemon initiates the Data Processing Execution Manager to begin processing the job containing the PGE03.
C.18.4	Connect to SDSRV	EcDpPrEM	EcDsScienceDataServer	CCS Middleware	The Data Processing Execution Manager begins a session with the Science Data Server by connecting, in order to acquire the PGE03 PGE. The correct Science Data Server is selected by using the Granule UR of the PGE granule, which is defined in the Production plan and is part of the DPR. This is pertinent if there are multiple Science Data Servers in use at one DAAC in one mode.
C.18.5	Add granule's UR to Session for a PGE	EcDpPrEM	EcDsScienceDataServer	CCS Middleware	The Data Processing Execution Manager establishes the data context of the session with the Science Data Server by adding the granule's UR to the ESDT ReferenceCollector for a PGE.

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Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.18.6	Retrieve Granule Metadata from Inventory	EcDsScienceDataServer	SYBASE ASE/SQS	CtLib	The Science Data Server completes establishing the data context by retrieving the metadata for the requested PGE granule from the SYBASE ASE/SQS database. The metadata for the PGE granule is passed back to the reference objects for each granule.
C.18.7	Acquire Data	EcDpPrEM	EcDsScienceDataServer	CCS Middleware	The Data Processing Execution Manager requests granules from the Science Data Server by submitting an acquire request for the PGE granule. The acquire request is for an FtpPush of all granules in the ESDT ReferenceCollector. This request is synchronous, meaning that the return of the "submit" call of the request contains the results of the request. This means that the response is not sent until the PGE granule files have been transferred to the Data Processing Subsystem's disks. This request asks for no distribution notice to be sent. The acquire request structure is hard-coded.
C.18.8	Create Staging Disk	EcDsScienceDataServer	EcDsStRequestManagerServer	CCS Middleware	The Science Data Server sends requests to the Storage Management Request Manager, which is forwarded to the Staging Disk Server to allocate space on staging disks for the granule files in the archive. The amount of staging disk to request is calculated from an in-memory copy of the metadata file.
C.18.9	Create Metadata file	EcDsScienceDataServer	EcDsScienceDataServer	CCS Middleware	The Science Data Server creates a file containing the PGE granule's metadata before passing to the Distribution Server.

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.18.10	Distribute Granules, Synchronous	EcDsScienceDataServer	EcDsDistributionServer	CCS Middleware	The Science Data Server submits a request to the Distribution Server. The request includes, for each granule, a reference to the metadata file as well as all data files. Other parameters from the acquire request are passed to the Distribution Server.
C.18.11	Claim Ownership	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager to claim ownership of the staging disk area created by the Staging Disk Server.
C.18.12	Create Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Request Manager, which is forwarded to the Staging Disk Server to allocate space on staging disks for the granule files in the archive. The amount of staging disk to request is calculated from the file sizes in the information passed in the Distribution Request.
C.18.13	STMGT Retrieve	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Request Manager, which is forwarded to the Archive Server to retrieve the PGE granule file that is archived. This results in the file being staged to read-only cache disks. This means all files needed to fulfill the distribution request are on disk and ready to be copied. The appropriate archive object to request is determined from the information provided by the Science Data Server in the distribution request. This returns references to the files in the read-only cache.

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.18.15	Link files to Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server links the files from the read-only cache into the staging disk via a request sent by Distribution Server to be relayed to the Staging Disk Server by the Storage Management Request Manager.
C.18.16	Link files to Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Request Manager to link metadata files from the staging disk area created by the Science Data Server to the staging disk area created by the Distribution Server.
C.18.17	FtpPush Files	EcDsDistributionServer	EcDsStResourceManagerServer	CCS Middleware	The Distribution Server sends requests to the Resource Manager, which is forwarded to the FTP Server for Ftp Pushes via a Resource Manager Factory. The correct resource manager is determined from the media type handed to the resource factory (FtpPush, in this case). The files, host, and location are all determined from the information provided in the original acquire request.
C.18.18	Ftp Files	EcDsStFtpServer	Operating System ftp daemon (EcDpPrEM)	Ftp	The FTP Server requests the actual transfer, via the Ftp service, of the PGE files via the Operating System Ftp daemon to the Data Processing Subsystem.
C.19.1	Connect to SDSRV	EcDpPrEM	EcDsScienceDataServer	CCS Middleware	The Data Processing Execution Manager invokes the Data Manager, which begins a session with the Science Data Server by connecting. The appropriate Science Data Server is selected by using the Granule UR of the granule from the Subscription Server Notification. This is pertinent if there are multiple Science Data Servers in use at one DAAC in one mode.

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.19.2	Add PGE granule's UR to Session	EcDpPrEM	EcDsScienceDataServer	CCS Middleware	The Data Processing Execution Manager invokes the Data Manager, which establishes the data context of the session with the Science Data Server by adding the input granules (MOD35ANC, MOD07LUT, SEA_ICE, OZ_DAILY, GDAS_0ZF, and REYNSST) to the session. The Granule UR of each input granule is added to the ESDT ReferenceCollector. Note that this sequence is performed for each input granule, one at a time.
C.19.3	Retrieve Granule Metadata from Inventory	EcDsScienceDataServer	SYBASE ASE/SQS	CtLib	The Science Data Server completes establishing the data context by retrieving the metadata for the requested granules from the SYBASE ASE/SQS database. The metadata for each granule is passed back to the reference objects for each granule.
C.19.4	Acquire Data	EcDpPrEM	EcDsScienceDataServer	CCS Middleware	The Data Processing Execution Manager invokes the Data Manager, which requests the MOD35ANC, MOD07LUT, SEA_ICE, OZ_DAILY, GDAS_0ZF, and REYNSST granules by submitting an acquire request for those granules to the Science Data Server. The acquire request is for an FtpPush of all granules in the ESDT ReferenceCollector. This request is synchronous, meaning that the return of the "submit" call of the request contains the results of the request. This means that the response is not sent until the granule files have been transferred to the Data Processing Subsystem's disks. This request asks for no distribution notice to be e-mailed. The acquire request structure is hard-coded.

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.19.5	Create Staging Disk	EcDsScienceDataServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager, which are forwarded to the Staging Disk Server to allocate space on staging disks for the granule files in the archive. The amount of staging disk to request is calculated an in-memory copy of the metadata files.
C.19.6	Create Metadata file	EcDsScienceDataServer	EcDsScienceDataServer	CCS Middleware	For each granule referenced in the acquire request, the Science Data Server creates a file containing the granule's metadata before passing to the Distribution Server.
C.19.7	Distribute Granules, Synchronous	EcDsScienceDataServer	EcDsDistributionServer	CCS Middleware	The Science Data Server submits a request to the Distribution Server. The request includes, for each granule, a reference to the metadata file as well as all data files. Other parameters from the acquire request are passed to the Distribution Server.
C.19.8	Claim Ownership	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Request Manager to claim ownership of the staging disk area created by the Staging Disk Server.

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.19.9	Create Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager, which is forwarded to the Staging Disk Server to allocate space on staging disks for the granule files in the archive. The amount of staging disk to request is calculated from the file sizes in the information passed in the Distribution Request.
C.19.10	STMGT Retrieve	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Request Manager, which is forwarded to the archive server to retrieve the granule file that is archived. This results in the file being staged to read-only cache disks. This means all files needed to fulfill the distribution request are on disk and ready to be copied. The appropriate archive object to request is determined from the information provided by the Science Data Server in the distribution request. This returns references to the files in the read-only cache.
C.19.11	Link files to Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server links the files from the read-only cache into the staging disk via requests sent to the Storage Management Request Manager, which are then routed to the Staging Disk Server.

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Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.19.12	Link files to Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager, which are forwarded to the Staging Disk Server to link metadata files from the staging disk area created by the Science Data Server to the staging disk area created by the Distribution Server.
C.19.13	FtpPush Files	EcDsDistributionServer	EcDsStResourceManagerServer	CCS Middleware	The Distribution Server sends requests to the Resource Manager for Ftp Pushes via a Resource Manager Factory. The appropriate resource manager is determined from the media type handed to the resource factory (FtpPush, in this case). The files, host, and location are all determined from the information provided in the original acquire request.
C.19.14	Ftp Files	EcDsStFtpServer	Operating System ftp daemon (EcDpPrEM)	Ftp	The FTP Server performs the actual Ftp of the files, via the Operating System Ftp daemon, to the Data Processing Execution Manager host computer.
C.20.1	Get Metadata Configuration File	EcDpPrEM	EcDsScienceDataServer	CCS Middleware	The Data Processing Execution Manager gets the metadata configuration file of the output data's ESDTs (MOD35_L2, MOD07_L2, and MODVOLC). The data type and version are from the PDPS database; The appropriate client name is from the configuration file.

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Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.20.2	Run PGE	EcDpPrRunPGE	PGE<PGE03>	Command line	PGE03 is executed. Output MOD35_L2, MOD07_L2, and MODVOLC files are placed in the output directory on Science Hardware disks. The directory path is established by using a root, which was established by configuration and the specific directory by the job ID. This disk root is cross-mounted by Data Processing Subsystem and the Data Server Subsystem's Science Data Server and Storage Management. This is to ensure that they are directly available to the Data Server Subsystem for archival.
C.21.1	Detecting a Failed PGE	EcDpPrEM	EcDpPrEM	None	The log file generated by Data Processing Run PGE process is inspected for failure exit codes. This processing continues with Thread D of the MODIS scenario.
C.22.1	Connect to Science Data Server	EcDpPrEM	EcDsScienceDataServer	CCS Middleware	The Data Processing Execution Manager invokes the Data Manager, which begins a session with the Science Data Server by connecting.

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.22.2	Insert Data	EcDpPrEM	EcDsScienceDataServer	CCS Middleware	The Data Processing Execution Manager invokes the Data Manager, which sends requests to the Science Data Server for the insertion of the newly created files for the MOD35_L2, MOD07_L2, and MODVOLC granules into the Data Server. An insert request, containing the names of the files comprising the granule, is created for each granule. The structure of the insert request is hard-coded. The Science Data Server validates the metadata and determines the archived names of the files.
C.22.3	STMGT Store	EcDsScienceDataServer	EcDsStRequestManagerServer	CCS Middleware	The Science Data Server sends requests to the Storage Management Request Manager, which are forwarded to the Archive Server for the files to be archived. The Archive Server must be able to read the inserted files directly from the Data Processing Subsystem's disks that they are residing on. The appropriate archive object is requested by the Archive ID input during ESDT installation. For files that have backup archive IDs and/or off-site IDs in the collection level metadata, backup copies are made in locations determined by the values of the backup archive ID and off-site ID.
C.22.4	Adding a Granule to Inventory	EcDsScienceDataServer	SYBASE ASE/SQS	CtLib	The validated metadata is parsed and added to the inventory of the Science Data Server.

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Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.23.1	Trigger Event	EcDsScienceDataServer	EcSbSubServer	CCS Middleware	Upon successful insertion of MOD35_L2, MOD07_L2, and MODVOLC granules, the MOD35_L2, MOD07_L2, and MODVOLC, Insert events are triggered. The appropriate Subscription Server is determined from the Science Data Server configuration. The inserted granule UR is provided when the event is triggered.
C.25.2	Retrieve Subscriptions	EcSbSubServer	SYBASE ASE	CtLib	The Subscription Server queries the SYBASE database determining which subscriptions need to be activated or fired. Each query "hit" is an activated subscription and executes independently.

3.5.7 MODIS Failed PGE Handling Thread

This thread shows how the artifacts from a failed PGE are collected and sent to the Instrument Team.

3.5.7.1 MODIS Failed PGE Handling Thread Interaction Diagram - Domain View

Figure 3.5.7.1-1 depicts the MODIS Failed PGE Handling Interaction - Domain View.
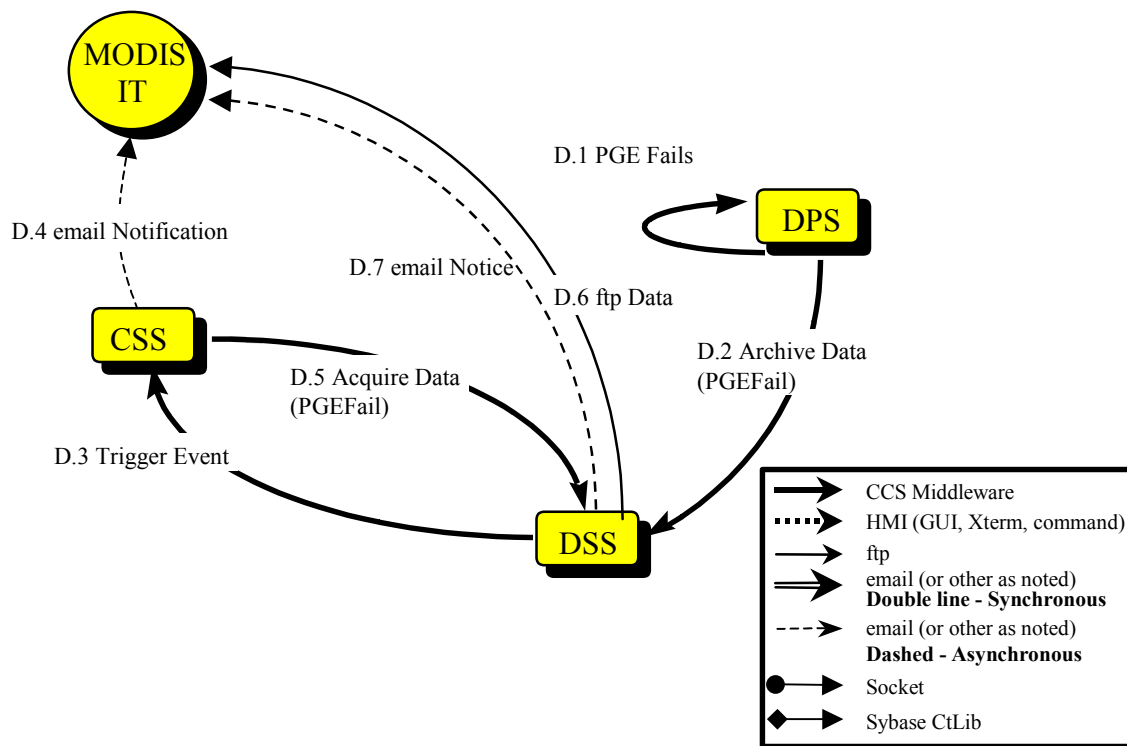
Figure 3.5.7.1-1. MODIS Failed PGE Handling Interaction Diagram

3.5.7.2 MODIS Failed PGE Handling Thread Interaction Table - Domain View

Table 3.5.7.2-1 provides the Interaction - Domain View: MODIS Failed PGE Handling.

Table 3.5.7.2-1. Interaction Table - Domain View: MODIS Failed PGE Handling

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
D.1	PGE Fails	DPS (PRONG)	DPS (PRONG)	None	None	One instance of the PGE03 running fails, due to the need for all daylight data, but some input data is night data. This step is the same step as C.22 in the previous Thread.
D.2	Archive Data	DPS (PRONG)	DSS (SDSRV)	1 FailPGE @30K	FailPGE	The Data Processing Subsystem collects the artifacts from the failed PGE, tars and inserts them into the Science Data Server.
D.3	Trigger Event	DSS (SDSRV)	CSS (SBSRV)	None	None	Trigger FailPGE:Insert event upon successful insertion of the FailPGE granule.
D.4	Notification	CSS (SBSRV)	MODIS Instrument Team	None	MODIS IT Subscription for FailPGE:Insert event, qualified for MODIS PGEs.	Send e-mail notification to MODIS IT, notifying that there is a newly inserted FailPGE granule, from a MODIS PGE. Notification message includes the UR of the FailPGE granule.
D.5	Acquire Data	CSS (SBSRV)	DSS (SDSRV)	None	None	The Subscription Server fulfills the standing order by the MODIS IT, for Failed MODIS PGEs. Send request to acquire data, via FtpPush, to the MODIS IT host.
D.6	Ftp Data	DSS (SDSRV, STMGT, DDIST)	MODIS Instrument Team	None	None	The Science Data Server transfers (via the Ftp service) the FailPGE tar file to the MODIS IT, placing it in the specified directory on the specified host.
D.7	Distribution Notice	DSS (SDSRV, DDIST)	MODIS Instrument Team	None	None	Send e-mail notification to MODIS IT, notifying that the newly inserted FailPGE has been successfully transferred (via the Ftp service) to their machine.

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3.5.7.3 Failed PGE Handling Thread Component Interaction Table

Table 3.5.7.3-1 provides the Component Interaction: MODIS Failed PGE Handling

Table 3.5.7.3-1. Component Interaction Table: MODIS Failed PGE Handling
(1 of 5)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
D.1.1	Detecting a Failed PGE	DPRExecution	PGE	File containing exit code	One instance of the PGE03 has failed, due to incorrect input data. This is detected by examining the exit code of the PGE, which is stored in a file named <DPRID>.log (in this case, MODPGE03#1.0#01<time>.log). The Data Processing Subsystem pulls together core file, along with any other files marked in the PCF, and archives them together on tape. Metadata for the FailPGE is built by Data Processing Execution Manager process.
D.2.1	Connect to Science Data Server	DPRExecution	EcDsScienceDataServer	CCS Middleware	The DPRExecution process begins a session with the Science Data Server by connecting.
D.2.2	Insert Data	DPRExecution	EcDsScienceDataServer	CCS Middleware	The DPRExecution process requests that the newly created tar file for the FailPGE granule be inserted into the Data Server. An insert request, containing the names of the file comprising the granule, is created for the granule. The structure of the insert request is hard-coded. The Science Data Server validates the metadata and determines the archived names of the files.
D.2.3	Storage Management Store	EcDsScienceDataServer	EcDsStRequestManagerServer	CCS Middleware	The Science Data Server requests that the files be archived. The Archive Server receives the Science Data Server requests from the Storage Management Request Manager. The Archive Server must be able to read the inserted files directly from the Data Processing Subsystem's disks that they are residing on. The correct archive object to request is determined from collection level metadata for the FailPGE ESDT, defined in the ESDT's descriptor.
D.2.4	Adding a Granule to Inventory	EcDsScienceDataServer	SYBASE ASE/SQS	CtLib	The validated metadata is parsed and added to the inventory of the Science Data Server.

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
D.3.1	Trigger Event	EcDsScienceDataServer	EcSbSubServer	CCS Middleware	Upon successful insertion of FailPGE granule, the FailPGE:Insert event is triggered. The correct subscription server is determined from Science Data Server configuration. The correct events to trigger are determined from the "events" file, which was populated during ESDT installation. Provided with the event triggering is the UR of the inserted granule.
D.3.2	Retrieve Subscriptions	EcSbSubServer	SYBASE ASE	CtLib	The Subscription Server queries the SYBASE ASE database determining which subscriptions need to be activated, or fired. Each query "hit" is an activated subscription and executes independently.
D.4.1	Send Notification	EcSbSubServer	MODIS IT	E-mail	The Subscription Server builds an e-mail notification that the user's subscription on the FailPGE event has been fired. This notification identifies the Event, the subscription ID, the granule UR that was inserted and the previously supplied User String.
D.5.1	Connect to Science Data Server	EcSbSubServer	EcDsScienceDataServer	CCS Middleware	In order to fulfill a standing order for MODIS data, the Subscription Server begins a session with the Science Data Server, on behalf of the subscription user. The appropriate Science Data Server is selected by the Granule UR provided when the event was triggered. This is pertinent if there are multiple Science Data Servers in use at one DAAC in one mode.
D.5.2	Add PGE granule's UR to Session	EcSbSubServer	EcDsScienceDataServer	CCS Middleware	The Subscription Server establishes the data context of the session with the Science Data Server by adding the input granules to the session. The Granule UR of each input granule is added to the ESDT ReferenceCollector.
D.5.3	Retrieve Granule Metadata from Inventory	EcDsScienceDataServer	SYBASE ASE/SQS	CtLib	The Science Data Server completes establishing the data context by retrieving the metadata for the requested granules from the SYBASE ASE/SQS database. The metadata for each granule is passed back to the reference objects for each granule.

Table 3.5.7.3-1. Component Interaction Table: MODIS Failed PGE Handling (3 of 5)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
D.5.4	Acquire Data	EcSbSub Server	EcDsSci enceData Server	CCS Middleware	The Subscription Server fulfills the standing order for the FailPGE granule by submitting an acquire request for the granule. The acquire request is for an FtpPush of all granules in the ESDT ReferenceCollector. This request is asynchronous, meaning that the return of the "submit" call of the request only contains the status of the request's submittal. This request asks for a distribution notice to be e-mailed to the client. The acquire request structure was hard-coded within the subscription server.
D.5.5	Create Staging Disk	EcDsScie nceDataS erver	EcDsStR equestM anagerS erver	CCS Middleware	The Science Data Server sends requests to the Storage Management Request Manager, which are forwarded to the Staging Disk Server to allocate space on staging disks for the granule files in the archive. The amount of staging disk to request is calculated from an in-memory copy of the metadata file.
D.5.6	Create Metadata file	EcDsScie nceDataS erver	EcDsSci enceData Server	CCS Middleware	For each granule referenced in the acquire request, the Science Data Server creates a file containing the granule's metadata before passing to Distribution.
D.5.7	Distribute Granules, Synchron ous	EcDsScie nceDataS erver	EcDsDist ributionS erver	CCS Middleware	The Science Data Server submits a request to the Distribution Server. The request includes, for the granule, a reference to the metadata file as well as the data file. Other parameters from the acquire request are passed to the Distribution Server.
D.5.8	Claim Ownershi p	EcDsDistri butionSer ver	EcDsStR equestM anagerS erver	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager, which is forwarded to the Staging Disk Server to claim ownership of the staging disk area created by the Staging Disk Server.

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Table 3.5.7.3-1. Component Interaction Table: MODIS Failed PGE Handling (4 of 5)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
D.5.9	Create Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager, which are forwarded to the Staging Disk Server to allocate space on staging disks for the granule files in the archive. The amount of staging disk to request is calculated from the file sizes in the information passed in the Distribution Request.
D.5.10	STMGT Retrieve	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server requests that Storage Management retrieve the granule file archived. The request is sent to the Storage Management Request Manager, which then forwards the request to the Archive Server. This results in the file being staged to read-only cache disks. This means all files needed to fulfill the distribution request are on disk and ready to be copied. The correct archive object to request is determined from the information provided by the Science Data Server in the distribution request. This returns references to the files in the read-only cache.
D.5.11	Link files to Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server links the files from the read-only cache into the staging disk by sending a request to the Storage Management Request Manager, which then forwards the request to the Staging Disk Server.
D.5.13	Link files to Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager, which is forwarded to the Staging Disk Server to link metadata files from the staging disk area created by the Science Data Server to the staging disk area created by the Distribution Server.

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
D.5.14	FtpPush Files	EcDsDistri butionSer ver	EcDsStFt pServer	CCS Middleware	The Distribution Server now creates the Resource manager for Ftp Pushes via a Resource Manager Factory. The correct resource manager is determined from the media type handed to the resource factory (FtpPush, in this case). The correct FTP Server is determined from the configuration within the resource factory. The files, host, location, user name and password are all determined from the information provided in the original acquire request.
D.6.1	Ftp Files	EcDsStFt pServer	Operatin g System ftp daemon (MODIS IT)	Ftp	The FTP Server performs the actual Ftp of the files to the MODIS IT.
D.7.1	Build Distributio n Notice	EcDsDistri butionSer ver	EcDsDist ributionS erver	Internal	The Distribution Server builds an e-mail notification that the user's order has been fulfilled. This notification includes the media ID, type and format of the request, Universal Reference (UR), type and file names and sizes for each granule as well as a DAAC configurable preamble.
D.7.2	Send E-mail	EcDsDistri butionSer ver	MODIS IT	E-mail	The Distribution Server sends the distribution notice to the user as determined from the order via e-mail. If this distribution notice fails, the notice is sent to a pre-configured default Email address for DAAC Distribution Technician parsing and forwarding.

3.5.8 MODIS Data Access Thread

This thread shows how the generated data products are available for user access. Also in this thread, the MODIS Standing Order, submitted in Thread A, is fulfilled.

3.5.8.1 MODIS Data Access Thread Interaction Diagram - Domain View

Figure 3.5.8.1-1 depicts the MODIS Data Access Interaction - Domain View
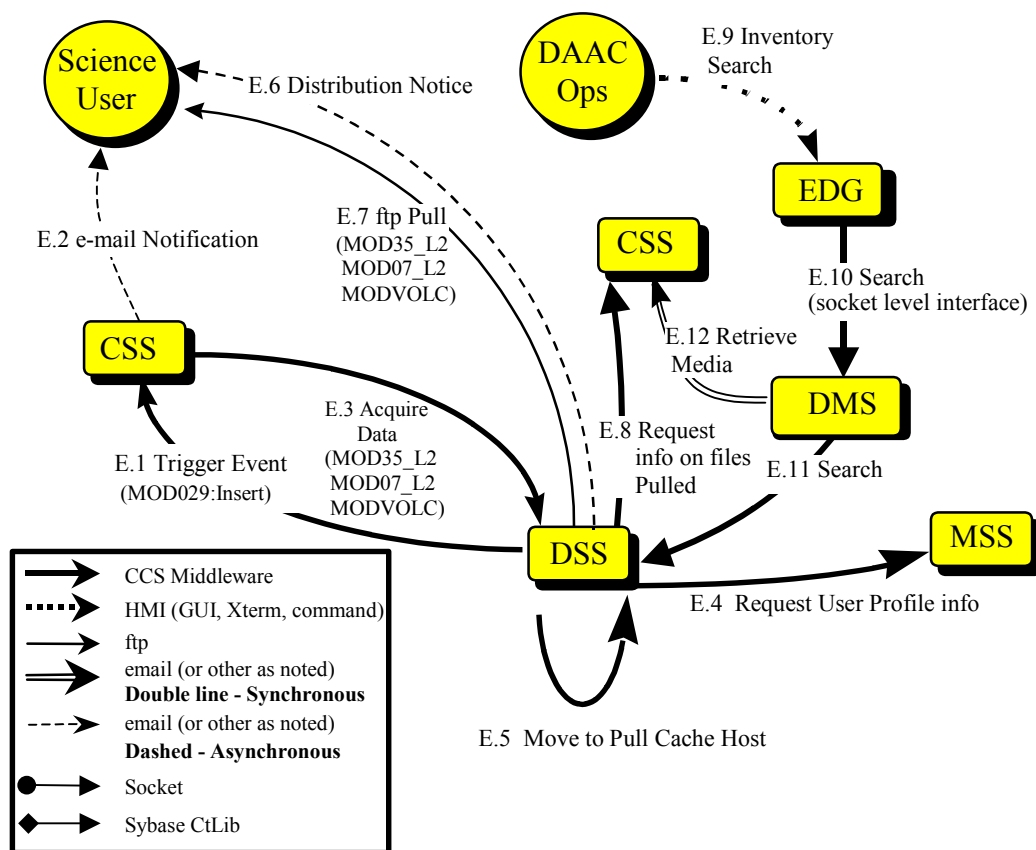
Figure 3.5.8.1-1. MODIS Data Access Interaction Diagram

3.5.8.2 MODIS Data Access Thread Interaction Table - Domain View

Table 3.5.8.2-1 provides the Interaction - Domain View: MODIS Data Access.

Table 3.5.8.2-1. Interaction Table - Domain View: MODIS Data Access (1 of 2)

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
E.1	Trigger Event	DSS (SDSRV)	CSS (SBSRV)	None	None	This thread picks up with fulfilling the standing order for MOD35_L2, MOD07_L2, and MODVOLC data. This is the same step as C.25 of this MODIS scenario.
E.2	Notification	CSS (SBSRV)	Science User	None	None	Send e-mail notification to Science User, notifying that there are newly inserted MOD35_L2, MOD07_L2, and MODVOLC granules. Notification message includes the UR of the MOD35_L2, MOD07_L2, and MODVOLC granules.
E.3	Acquire Data	CSS (SBSRV)	DSS (SDSRV)	None	None	Subscription Server fulfills the standing order by the Science User, for MOD35_L2, MOD07_L2, and MODVOLC granules. Request to acquire data, via Ftp Pull from the Pull Cache host. If the acquire fails, a failed acquire notification e-mail is sent to the user.
E.4	Request User Profile info	DSS (SDSRV)	MSS (MCI)	None	None	Upon receiving a request from an authorized user, the Science Data Server obtains user profile access privilege level data from the MCI.
E.5	Move to Pull Cache Host	DSS (STMGT)	DSS (STMGT)	None	Account and password for the ftp push to the pull cache have to be set up	The Science Data Server moves the files requested to the Pull Cache area. This is internal to Data Server Subsystem.
E.6	Distribution Notice	DSS (DDIST)	Science User	None	None	Send e-mail notification to Science User, notifying that the newly inserted MOD35_L2, MOD07_L2, and MODVOLC granules are available via Ftp Pull on a specified host and directory.

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Table 3.5.8.2-1. Interaction Table - Domain View: MODIS Data Access (2 of 2)

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
E.7	Ftp Pull	Science User	Ftp daemon on ftp Pull Area Host	None	Ftp daemon	The Data Requestor logs into the host specified in the mail notification either through an individual account or via anonymous Ftp. The Data Requestor performs an Ftp get or mget command to move the files (MOD35_L2, MOD07_L2, and MODVOLC) from the directory specified in the mail notification to his/her home node.
E.8	Request info on files pulled	DSS (STMGT)	DSS (STMGT)	None	None	The Pull Monitor requests information from Xfer log (Wu-Ftp) of the files pulled over the last configurable time period.
E.9	Inventory Search	DAAC Operator	EDG	None	None	To verify the newly created data is available, a DAAC Operator performs an inventory search for all MODIS data created in the last day.
E.10	Search	EDG	DMS (V0 GTWAY)	None	None	The EOS Data Gateway submits the DAAC Operator's search criteria to the V0 Gateway in Object Description Language (ODL) format, via a specific socket.
E.11	Search	DMS (V0 GTWAY)	DSS (SDSRV)	None	None	The V0 gateway translates the Search criteria from ODL to a query object (using GlParameters), and submits that query to the search service. The V0 Gateway sends the chunk size as one of the search constraints. This controls the number of granules returned at one time. The results of this search are returned synchronously, and are passed back to EOS Data Gateway, which displays them to the Science User.
E.12	Retrieve Media	DMS (V0 GTWAY)	CSS (Registry)	None	None	The results of this search are returned synchronously. The media options are returned from the Communications Subsystem's Registry Server and the results are passed back to the EOS Data Gateway, which displays them to the Science User.

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3.5.8.3 MODIS Data Access Thread Component Interaction Table

Table 3.5.8.3-1 provides the Component Interaction: MODIS Data Access.

Table 3.5.8.3-1. Component Interaction Table: MODIS Data Access
(1 of 8)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
E.1.1	Trigger Event	EcDsSci enceData Server	EcSbSub Server	CCS Middleware	Upon successful insertion of MOD35_L2, MOD07_L2, and MODVOLC granules, the MOD35_L2, MOD07_L2, and MODVOLC:Insert events are triggered, for each granule. The correct subscription server is determined from Science Data Server configuration. Provided with the event triggering is the Universal Reference (UR) of the inserted granule.
E.1.1 .1	Request User Profile	EcSbSub Server	EcMsAcR egUserSrv r	CCS Middleware	The Subscription Server requests the user profile information of the subscriber from the User Registration Server (System Management Subsystem) for the "acquire" privilege level.
E.1.2	Retrieve Subscript ions	EcSbSub Server	SYBASE ASE	CtLib	The Subscription Server queries the SYBASE ASE database determining which subscriptions need to be activated or fired. Each query "hit" is an activated subscription and executes independently.
E.2.1	Send Notificati on	EcSbSub Server	Science User	E-mail	The Subscription Server builds an e-mail notification that the user's subscriptions on the MOD35_L2, MOD07_L2, and MODVOLC:Insert events have been fired. This notification identifies the Event, the subscription ID, the Granule UR that was inserted and the previously supplied User String.
E.3.1	Connect to SDSRV	EcSbSub Server	EcDsScie nceDataS erver	CCS Middleware	In order to fulfill a standing order for the MOD35_L2, MOD07_L2, and MODVOLC data, the Subscription Server begins a session with the Science Data Server, on behalf of the subscription user. The appropriate Science Data Server is selected by the Granule UR provided with the event triggering. This is pertinent if there are multiple Science Data Servers in use at one DAAC in one mode.

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Table 3.5.8.3-1. Component Interaction Table: MODIS Data Access
(2 of 8)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
E.3.2	Add PGE granule's UR to Session	EcSbSub Server	EcDsScien ceDataSer ver	CCS Middleware	The Subscription Server establishes the data context of the session with the Science Data Server by adding the input granules to the session. The Granule Universal Reference (UR) of each input granule is added to the Earth Sciene Data Type (ESDT) ReferenceCollector.
E.3.3	Retrieve Granule Metadata from Inventory	EcDsSci enceData Server	SYBASE ASE/SQS	CtLib	The Science Data Server completes establishing the data context by retrieving the metadata for the requested granules from the SYBASE ASE/SQS database. The metadata for each granule is passed back to the reference objects for each granule.
E.3.4	Acquire Data	EcSbSub Server	EcDsScien ceDataSer ver	CCS Middleware	The Subscription Server fulfills the standing order for the MOD35_L2, MOD07_L2, and MODVOLC granules by submitting an acquire request for the granule. The acquire request is for an Ftp Pull of all granules in the ESDT ReferenceCollector. This request is asynchronous; meaning the return of the "submit" call of the request only contains the status of the request's submittal. This request asks for a distribution notice to be e-mailed to the client. The acquire request structure was determined from the action submitted with the standing order method.
E.3.5	Create Staging Disk	EcDsSci enceData Server	EcDsStReq uestManag erServer	CCS Middleware	The Science Data Server sends requests to the Storage Management Request Manager, which is forwarded to the Staging Disk Server to allocate space on staging disks for the granule metadata files. The amount of staging disk to request is calculated from an in-memory copy of the metadata files.
E.3.6	Create Metadata file	EcDsSci enceData Server	EcDsScien ceDataSer ver	CCS Middleware	For each granule referenced in the acquire request, the Science Data Server creates a file containing the granule's metadata before passing to the Distribution Server.

Table 3.5.8.3-1. Component Interaction Table: MODIS Data Access
(3 of 8)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
E.3.7	Distribute Granules, Asynchronous	EcDsScienceDataServer	EcDsDistributionServer	CCS Middleware	The Science Data Server submits a request to the Distribution Server. The request includes, for the granule, a reference to the metadata file as well as the data file. Other parameters from the acquire request are passed to the Distribution Server.
E.3.8	Claim Ownership	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager, which is forwarded to the Staging Disk Server to claim ownership of the staging disk area created by the Staging Disk Server.
E.3.9	Create Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager, which is forwarded to the Staging Disk Server to allocate space on staging disks for the granule files in the archive. The amount of staging disk to request is calculated from the file sizes in the information passed in the Distribution Request. A Backup Archive ID and an off-site ID are also passed to the Distribution Server from Science Data Server metadata for each file.

**Table 3.5.8.3-1. Component Interaction Table: MODIS Data Access
(4 of 8)**

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
E.3.1 0	Storage Managem ent Retrieve	EcDsDist ributionS erver	EcDsStReq uestManag erServer	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager, which is forwarded to the Archive Server to retrieve the granule file archived. This results in the file being staged to read-only cache disks. This means all files needed to fulfill the distribution request are on disk and ready to be copied. The correct archive object to request is determined from the information provided by the Science Data Server in the distribution request. This returns references to the files in the read-only cache.
E.3.1 0.1	Storage Managem ent Retrieve Failure from Primary Archive ID	EcDsStA rchiveSer ver	EcDsStArc hiveServer	Internal method calls (internal server functions)	Failure of the Storage Management retrieval of a file initiates an attempt to retrieve the file from the primary archive location. The Operator is notified of the failure to retrieve from the primary archive ID.
E.3.1 0.2	Storage Managem ent Retrieve Failure from Backup Archive ID	EcDsStA rchiveSer ver	EcDsStArc hiveServer at remote site	CCS Middleware	If the retrieve attempt fails a second time (either from backup or from primary archive IDs), then a third attempt is made. If the off-site ID is not empty, it is used to determine the location of the file on tape, which could have been exported from the archive. The Operator is notified of the failure to retrieve from the backup archive ID.

Table 3.5.8.3-1. Component Interaction Table: MODIS Data Access
(5 of 8)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
E.3.11	Link files to Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server links the files from the read-only cache into the staging disk by sending a request to the Storage Management Request Manager, which then forwards such requests to the Staging Disk Server.
E.3.12	Link files to Staging Disk	EcDsDistributionServer	EcDsStRequestManagerServer	CCS Middleware	The Distribution Server sends requests to the Storage Management Request Manager to link metadata files from the staging disk area created by the Science Data Server to the staging disk area created by the Distribution Server.
E.3.13	Ftp Pull Files	EcDsStCacheManagerServer	EcDsStFtpServer	CCS Middleware	The Distribution Server now creates the Resource manager for Ftp Pulls via a Resource Manager Factory. The correct resource manager is determined from the media type handed to the resource factory (Ftp Pull, in this case). The correct FTP Server is determined from the configuration within the resource factory. The files are determined from the information provided in the original acquire request.
E.4.1	Request User Profile info	EcDsScienceDataServer	EcMsAcRegUserSrvr	CCS Middleware	Upon receiving a request from an authorized user, the Science Data Server obtains user profile access privilege level data from the System Management Subsystem's User Registration Server.
E.5.1	Insert files	EcDsStFtpServer	EcDsStPullMonitorServer	CCS Middleware	The FTP Server sends the name of a file to the Pull Monitor. If the Pull Monitor has the file in the pull cache area, the file is linked to the directory, which was created in the user pull area for servicing this request. If the file is not found in the cache, the Pull Monitor pulls the file to the cache area.
E.6.1	Build Distribution Notice	EcDsDistributionServer	EcDsDistributionServer	E-mail	The Distribution Server builds an e-mail notification that the user's order has been fulfilled. This notification includes the media ID, type and format of the request, Universal Reference (UR) and file names and sizes for each granule as well as a DAAC configurable preamble.

Table 3.5.8.3-1. Component Interaction Table: MODIS Data Access
(6 of 8)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
E.6.2	Send E-mail	EcDsDistributionServer	Science User	E-mail	The Distribution Server sends the distribution notice to the user as determined from the order via e-mail. If this distribution notice fails, the notice is sent to a pre-configured default E-mail address for DAAC Distribution Technician parsing and forwarding.
E.7.1	Ftp Pull	Science User	Wu-Ftp Daemon on Host for ftp Pull	Operating System command	The Science User opens an Ftp session on the host designated in the e-mail received after data has been retrieved. Anonymous Ftp services are supported. The user sets the directory to the directory specified in the e-mail notification and either does a single get on a per file basis or a multiple get (mget) to copy everything in the directory to his/her own node. Once the copies are completed, the Science User quits out of Ftp.
E.8.1	Request info on files pulled	EcDsStPullMonitorServer	EcDsStPullMonitorServer	CtLib	The syslog is read. All entries pertaining to Ftp gets are read and the directory and path are returned. The Pull Monitor removes the links for files that have been pulled and updates database tables to maintain consistency. The reading of the syslog is timer based. The timer length can be configured via the Storage Management GUI.
E.9.1	Startup EDG	DAAC Science Data Specialist	iPlanet web server	Command	The DAAC Science Data Specialist invokes a Netscape browser and navigates to the EOS Data Gateway (EDG) homepage.
E.9.2	Select Inventory Search, Provide Query constraints, Submit Query	DAAC Ops	iPlanet web server	GUI	The Operator provides search constraints and the products desired. When query constraints are completed, the query is submitted.
E.10.1	V0 Gateway Inventory Search	iPlanet web server	EcDmV0ToEcsGateway	ODL, over sockets	The EOS Data Gateway submits a search to the V0 Gateway, by converting the search criteria into an Object Description Language (ODL) structure and passing that structure to a socket provided by the Gateway. The correct socket is determined from configuration information contained in the Valids file.

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Table 3.5.8.3-1. Component Interaction Table: MODIS Data Access
(7 of 8)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
E.11. 1	Establish ECS User	EcDmV0 ToEcsGa teway	EcMsAcR egUserSrv r	CCS Middleware	The V0 Gateway retrieves the user profile using the ECS Authenticator from the Object Description Language (ODL) message, which includes an encrypted User ID and Password. The User Registration database is replicated across DAACs, so the connection is made to the local User Registration Server.
E.11. 2	Request Attribute Mapping	EcDmV0 ToEcsGa teway	EcDmDict Server	CtLib (RWDBTool)	The V0 Gateway translates the V0 terms from ODL into ECS names for query submittal. The interface is directly to the Data Dictionary database. The database name is retrieved from a configuration file.
E.11. 3	Connect to SDSRV	EcDmV0 ToEcsGa teway	EcDsScie nceDataS erver	CCS Middleware	The V0 Gateway first connects to the Science Data Server. The appropriate Science Data Server is determined by configuration information. This is pertinent if there are multiple Science Data Servers in use at one DAAC in one mode.
E.11. 4	Science Data Server Query	EcDmV0 ToEcsGa teway	EcDsScie nceDataS erver	CCS Middleware	The V0 Gateway translates the query into a DsClQuery object. This object is handed to the Search interface of the DsClESDTReferenceCollector. This search method is synchronous, so the results of the search are returned to the calling function. The V0 Gateway configures the chunk size, which controls how many granules are returned to the V0 Gateway at one time. After the search, the V0 Gateway receives a list of URs. Then it does an "Inspect" to the Science Data Server to get the metadata. It first performs a GetQueryableParameter to determine all attributes associated with each granule.
E.11. 5	Request Metadata	EcDsSci enceData Server	SYBASE ASE/SQS	CtLib	The Science Data Server breaks down the query object and translates it into a sequence of calls to the inventory database. The resultant rows are converted into data granules. These results are packaged and returned to the Query client.

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Table 3.5.8.3-1. Component Interaction Table: MODIS Data Access (8 of 8)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
E.11.6	Result Retrieval	iPlanet web server	EcDmV0ToEcsGateway	ODL, over Sockets	When the V0 Gateway gets the results, they are translated into an Object Description Language (ODL), and passed back to the EOS Data Gateway (EDG). The correct socket for sending results to the EOS Data Gateway is the one used to submit the query. The EOS Data Gateway then displays the results of the query to the User.
E.12.1	Retrieve Media	EcDmV0ToEcsGateway	EcCsRegistry	CCS Middleware	The V0 Gateway retrieves the media from the Communications Subsystem's Registry Server. The media are translated into ODL, and the ODL is put into the search result.

3.5.9 Data Compression on Distribution Thread (Deleted)

3.5.10 Reactivation/Replan

3.5.10.1 Reactivation/Replan Description

This scenario shows the three different types of reactivation/replanning. This scenario modifies either ASTER or MODIS.

The following system functionality is exercised in this scenario:

- Capability to activate a new current plan on top of a current plan already being exercised

- Account for discrepancies in Data Processing Requests (DPRs) between those two plans

3.5.10.2 Reactivation/Replan Preconditions

Production Requests (PRs) have already been generated from the Production Request Editor. The Subscription Manager is running. The Job Management Server is running. AutoSys is running. The Planning Workbench and its background processes are running.

There must be a current plan. This current plan can be either active or inactive, and either with or without Data Processing Requests. Also, ESDTs must be installed, SSI&T must be completed on the PGE, the PRs must have been entered, and the input granules must be available.

3.5.10.3 Reactivation/Replan Partitions

This scenario has been partitioned into the following threads:

- **DPR in New Plan but Not in Old Plan** (Thread A) - This thread illustrates how a current active plan without DPRs can be re-planned/reactivated as a new plan with DPRs (see section 3.5.9.4).
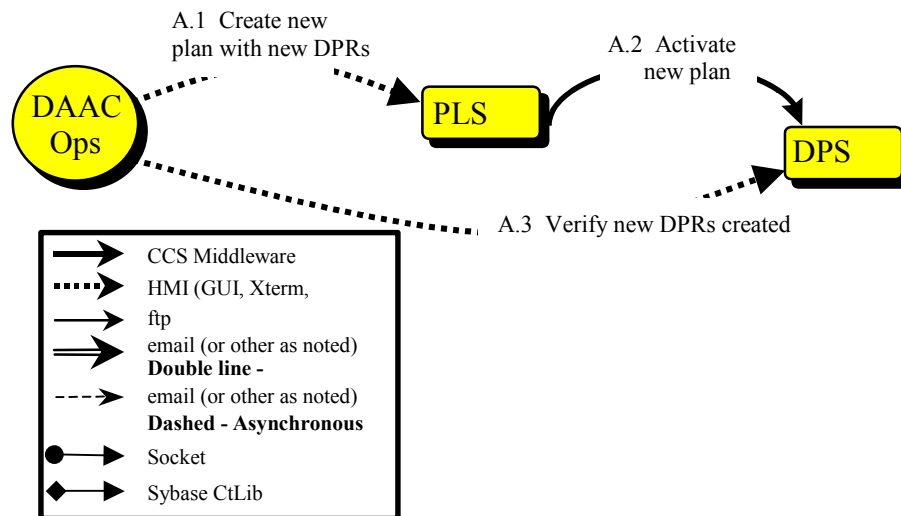
- **DPR in Old Plan but Not in New Plan** (Thread B) - This thread illustrates how a current active plan with DPRs in the queue can be re-planned/reactivated as a new plan without DPRs (see section 3.5.9.5).

- **DPR in Both Old Plan and New Plan** (Thread C) - This thread illustrates how a current active plan with DPRs can be re-planned/reactivated as a new plan with those same DPRs (see section 3.5.9.6).

3.5.10.4 DPR in New Plan but Not in Old Plan Thread

This thread illustrates how a current active plan without DPRs can be re-planned/reactivated as a new plan with DPRs.

3.5.10.4.1 DPR in New Plan but Not in Old Plan Interaction Diagram - Domain View

Figure 3.5.10.4.1-1 depicts the DPR in New Plan but Not in Old Plan Interaction - Domain View.

Figure 3.5.10.4.1-1. DPR in New Plan but Not in Old Plan Interaction Diagram - Domain View

3.5.10.4.2   DPR in New Plan but Not in Old Plan Interaction Table - Domain View

Table 3.5.10.4.2-1 provides the Interaction - Domain View: DPR in New Plan but Not in Old Plan.

Table 3.5.10.4.2-1. Interaction Table - Domain View: DPR in New Plan but Not in Old Plan

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
A.1	Create new plan with new DPRs	DAAC Ops - Production Planner (Operator)	PLS	PRs have already been generated. ESDTs must have been installed. Input granules must be available.	There must be a current plan. SSI&T must have been completed on the PGE. The Planning Workbench must be up and running.	The Production Planner creates a new plan with new Data Processing Requests (DPRs).
A.2	Activate new plan	PLS	DPS	None	Planning Workbench must be up and running.	The new plan is activated.
A.3	Verify new DPRs created	DAAC Ops - Production Planner	DPS	None	The Job Management Server and AutoSys must be up and running.	The Production Planner verifies the newly created DPRs.

3.5.10.4.3 DPR in New Plan but Not in Old Plan Component Interaction Table

Table 3.5.10.4.3-1 provides the Component Interaction: DPR in New Plan but Not in Old Plan.

Table 3.5.10.4.3-1. Component Interaction Table: DPR in New Plan but Not in Old Plan (1 of 2)

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
A.1.1	Operator clicks on "new" plan" button	DAAC Ops - Production Planner	EcPlWb	GUI	The Production Planner clicks on the new plan button. The new plan uses the new Data Processing Requests (DPRs).
A.1.2	Operator enters new plan name	DAAC Ops - Production Planner	EcPlWb	GUI	The Production Planner enters the new plan name.
A.1.3	Operator selects the PRs to be included	DAAC Ops - Production Planner	EcPlWb	GUI	The Production Planner selects the Production Requests (PRs) to be included.
A.1.4	Operator schedules PRs to activate	DAAC Ops - Production Planner	EcPlWb	GUI	The Production Planner schedules the PRs to activate.
A.1.5	Operator saves the new plan	DAAC Ops - Production Planner	EcPlWb	GUI	The Production Planner saves the new plan.

*Table 3.5.10.4.3-1. Component Interaction Table: DPR in New Plan but Not in Old Plan (2 of 2)*

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
A.2.1	Activate new plan	EcPlWb	EcDpPrJobMgmt	CCS Middleware	The new plan is activated and the new Data Processing Requests (DPRs) are ready to run.
A.3.1	Operator checks on DPS AutoSys to verify state	DAAC Ops - Production Planner	AutoSys	GUI	The Production Planner checks on the state of the job in AutoSys. The new DPRs are in AutoSys and begin to run.

3.5.10.5   DPR in Old Plan but Not in New Plan Thread

This thread illustrates how a current active plan with DPRs in the queue can be re-planned or reactivated as a new plan without DPRs.

3.5.10.5.1 DPR in Old Plan but Not in New Plan Thread Interaction Diagram - Domain View

Figure 3.5.10.5.1-1 depicts the DPR in Old Plan but Not in New Plan Interaction - Domain View.
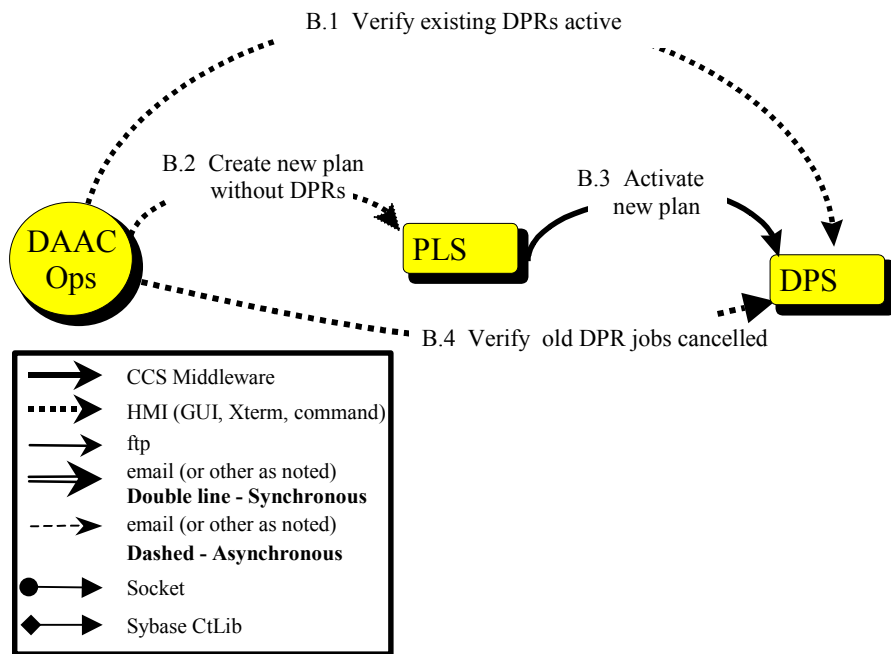
Figure 3.5.10.5.1-1. DPR in Old Plan but Not in New Plan Interaction Diagram - Domain View

3.5.10.5.2 DPR in Old Plan but Not in New Plan Thread Interaction Table - Domain View

Table 3.5.10.5.2-1 provides the Interaction - Domain View: DPR in Old Plan but Not in New Plan.

Table 3.5.10.5.2-1. Interaction Table - Domain View: DPR in Old Plan but Not in New Plan

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
B.1	Verify status of current DPRs	DAAC Ops - Production Planner	DPS (PRONG)	PRs have already been generated. ESDTs must have been installed. Input granules must be available.	The current plan (with DPRs) must have already been activated.	Current Data Processing Requests (DPRs) should be in the Job Management queue and can be viewed by the Production Planner by pressing the "Jobs Waiting" button in the Ops Console of the AutoSys GUI.
B.2	Create new plan without DPRs	DAAC Ops - Production Planner	PLS (PLANG)	The new plan must not have any DPRs.	The Planning Workbench must be up and running.	The Production Planner creates a new plan (without DPRs) to replace the old plan (with DPRs).
B.3	Activate new plan	PLS (PLANG)	DPS (PRONG)	None	The Planning Workbench must be up and running.	The new plan is activated.
B.4	Verify old (current, existing) DPR jobs canceled	DAAC Ops - Production Planner	DPS (PRONG)	None	Job Management and AutoSys must be up and running.	The Production Planner uses the "Jobs Waiting" button to verify the priority of the new plan and the cancellation of old priority DPR jobs.

3.5.10.5.3 DPR in Old Plan but Not in New Plan Thread Component Interaction Table

Table 3.5.10.5.3-1 provides the Component Interaction: DPR in Old Plan but Not in New Plan.

*Table 3.5.10.5.3-1. Component Interaction Table: DPR in Old Plan but Not in New Plan*

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
B.1.1	Operator verifies DPRs on active plan are in the queue	DAAC Ops – Production Planner	AutoSys	GUI	The current Data Processing Requests (DPRs) should be in the queue and can be viewed by the Production Planner by pressing the "Jobs Waiting" button.
B.2.1	Operator creates a new plan	DAAC Ops – Production Planner	EcPlWb	GUI	The Production Planner creates a new plan (without DPRs) to replace the old plan (with DPRs).
B.3.1	Activate new plan	EcPlWb	EcDpPrJob Mgmt	CCS Middleware	The new plan is activated.
B.4.1	Verify state of new plan's DPRs	DAAC Ops – Production Planner	AutoSys	GUI	The Production Planner uses AutoSys Jobscape to verify the priority of the new jobs.
B.4.2	Verify state of old (existing) plan's DPRs	DAAC Ops – Production Planner	AutoSys	GUI	The Production Planner uses the "Jobs Waiting" button to verify the cancellation of old priority DPR jobs. Note – In this case, any jobs stored in AutoSys are not deleted during a replan. Only jobs in the Job Management queue are cancelled.

3.5.10.6   DPR in Both Old Plan and New Plan Thread

This thread illustrates how a current active plan with DPRs can be re-planned/reactivated as a new plan with those same DPRs.

3.5.10.6.1 DPR in Both Old Plan and New Plan Thread Interaction Diagram - Domain View

Figure 3.5.10.6.1-1 depicts the DPR in Both Old Plan and New Plan Interaction - Domain View.
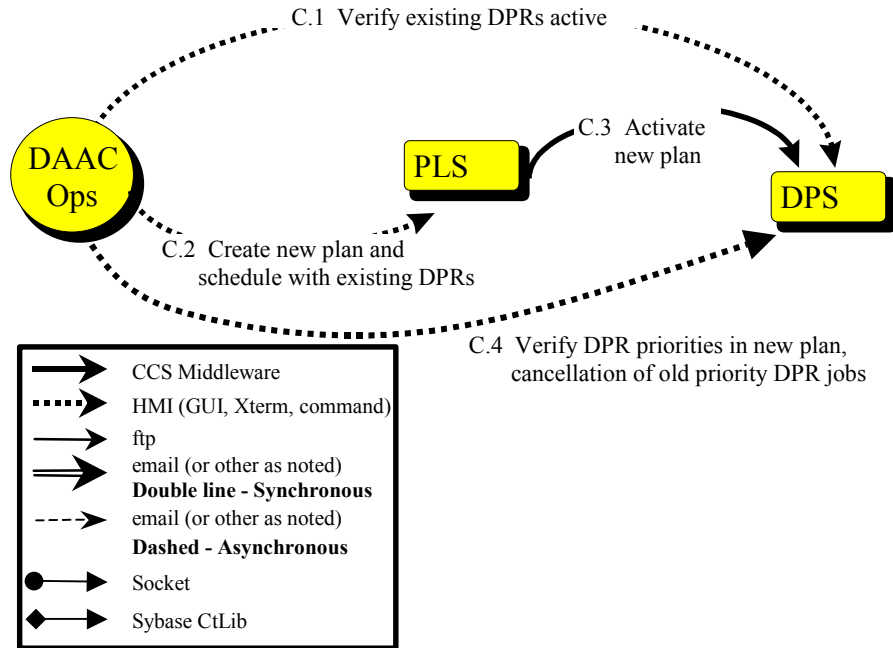
*Figure 3.5.10.6.1-1. DPR in Both Old Plan and New Plan Interaction Diagram -
Domain View*

3.5.10.6.2 DPR in Both Old Plan and New Plan Thread Interaction Table - Domain View

Table 3.5.10.6.2-1 provides the Interaction - Domain View: DPR in Both Old Plan and New Plan.

Table 3.5.10.6.2-1. Interaction Table - Domain View: DPR in Both Old Plan and New Plan

Step	Event	Interface Client	Interface Provider	Data Issues	Step Preconditions	Description
C.1	Operator verifies DPRs of active plan are in the AutoSys queue	DAAC Ops - Production Planner	DPS (PRONG)	PRs have already been generated. ESDTs must have been installed. Input granules must be available.	The current plan (with DPRs) must have already been activated. Job Management must be up and running. AutoSys Jobscape must be up and running.	The current Data Processing Requests (DPRs) should be in the Job Management queue and can be viewed by the Production Planner by pressing the "Jobs Waiting" button in the Ops console of the AutoSys GUI.
C.2	Create new plan and schedule with existing DPRs	DAAC Ops - Production Planner	PLS (PLANG)	None	The Planning Workbench must be up and running.	The Production Planner creates a new plan and schedule using the existing Data Processing Requests (DPRs), adjusting the DPR priorities as necessary.
C.3	Activate new plan	PLS (PLANG)	DPS (PRONG)	None	The Planning Workbench must be up and running.	The new plan is activated.
C.4	Verify DPR priorities in new plan, cancellation of old priority DPR jobs	DAAC Ops - Production Planner	DPS (PRONG)	None	The Planning Workbench must be up and running. The Planning Workbench ALOG file must exist. AutoSys Jobscape must be up and running.	The Production Planner verifies the DPR priorities in the new plan and the cancellation of the old priority DPR jobs.

3.5.10.6.3 DPR in Both Old Plan and New Plan Thread Component Interaction Table

Table 3.5.10.6.3-1 provides the Component Interaction: DPR in Both Old Plan and New Plan.

Table 3.5.10.6.3-1. Component Interaction Table: DPR in Both Old Plan and New Plan

Step	Event	Interface Client	Interface Provider	Interface Mech.	Description
C.1.1	Operator verifies that DPRs on active plan are in the queue	DAAC Ops – Production Planner	AutoSys	GUI	The current Data Processing Requests (DPRs) should be in the Job Management queue and can be viewed by the Production Planner by pressing the "Jobs Waiting" button.
C.2.1	Operator creates a new plan	DAAC Ops – Production Planner	EcPlWb	GUI	The Production Planner creates a new plan.
C.2.2	Select PRs used by the old plan (see step C.2)	DAAC Ops - Production Planner	EcPlWb	GUI	The Production Planner selects Production Requests (PRs), with Data Processing Requests (DPRs) in the Job Management queue he wishes to re-prioritize.
C.2.3	Schedule these PRs	DAAC Ops - Production Planner	EcPlWb	GUI	The Production Planner creates a new plan using the re-prioritized DPRs.
C.3.1	Activate plan	EcPlWb	EcDpPrJobMgmt	CCS Middleware	The new plan is activated.
C.4.1	Verify priorities of plan's DPRs	DAAC Ops - Production Planner	AutoSys	GUI	The Production Planner verifies the new DPR priorities are in the Job Management queue.
C.4.2	Priority changes	DAAC Ops - Production Planner	AutoSys	GUI	The new DPR job must be in the Job Management queue. The old DPR must be cancelled. If priorities differ between the old DPR and the new DPR, the old DPR job should be cancelled and a new DPR created. Note – Only jobs in the Job Management queue have their priorities changed. If the jobs are already in AutoSys, their priorities are meaningless and are not changed.